

LONoyEE 朗亿

PRODUCT MANUAL

产品手册

LONoyEE 朗亿





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企业简介
Company Profile

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**有刷
空心杯电机系列
贵金属刷、碳刷**

Coreless Brush Motor Series
Precious metal brushes /
Graphite brushes

03

**无刷
空心杯一对极
电机系列**

Coreless Brushless
Motor Series-2 Poles

04

**无刷
空心杯两对极
电机系列**

Coreless Brushless
Motor Series-4 Poles



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行星
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Planetary Gearbox Series

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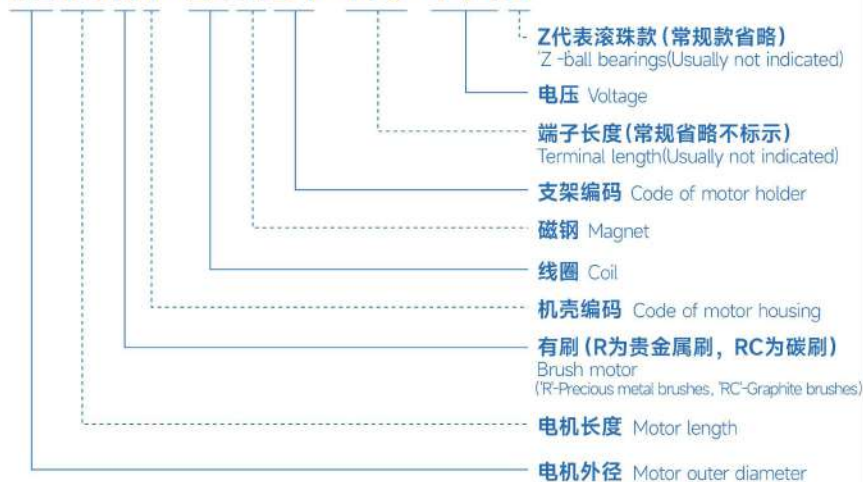
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产品命名规则

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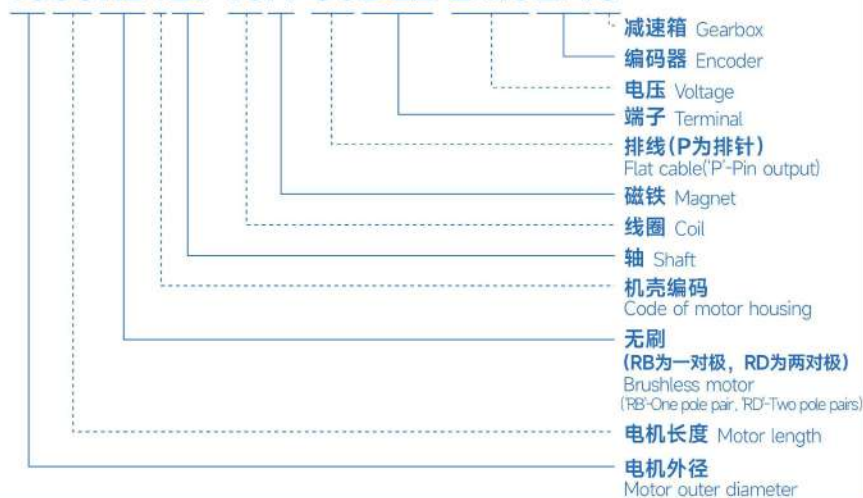
有刷空心杯电机产品命名规则 | Coreless Brush Motor Product Naming Rules

1215R1-21AL1-1.6-7.4Z



无刷空心杯电机产品命名规则 | Coreless Brushless Motor Product Naming Rules

1636RB1L1-10A-50D22-24.0EMG



减速箱产品命名规则 | Gearbox Product Naming Rules

G16MF64



ABOUT US



关于我们

About Us

工业级高精度 微型驱动系统方案商

A Solution Provider of Industrial-Grade,
High-Precision Micro Drive Systems

**专注于研发、生产精密驱动系统，为客户提供
智能驱动方案设计，零件的生产与组装的定制化服务**

Specializing in the R&D and production of precision drive systems,
we provide customers with customized services including
intelligent drive solution design, parts production and assembly.

东莞市朗亿机电科技有限公司专业致力于全系列高端空心杯电机研发和制造.我们拥有强大的研发团队和制造能力，拥有专业的空心杯电机生产线，通过技术创新和定制化，协助您打造出类拔萃的高效传动系统。

我们的微型传动解决方案广泛应用于工具、医疗、机器人技术、自动化、智能家居、安全门锁、安防门禁等领域，推进全世界关键应用系统的发展。

Dongguan Langyi Electromechanical Technology Co., Ltd. is dedicated to the R&D and manufacturing of high-end coreless motors. We have a strong R&D team and robust manufacturing capabilities. With a professional coreless motor production line, we are sure to help you build an outstanding and efficient transmission system through our technological innovation and customized services.

Our micro drive solutions are widely applied in tools, medical devices, robotics, automation equipment, smart homes, security door locks, and access control systems, supporting the development of key application systems around the world.

COMPANY OVERVIEWS

公司概况

Company Overviews

8000 ^{+m²}
厂房
Plant Area

300 ^{+名}
员工
Staff

20 ^{+条}
生产线
Production Lines

1000W ^{+件}
年产量
Annual Output

工业级高精密 微型驱动系统方案商

A Solution Provider of Industrial-Grade,
High-Precision Micro Drive Systems

LONOTE 朗亿

企业文化

COMPANY CULTURE

企业使命

Company Mission

提供高精密空心杯电机及运动控制解决方案，替代进口电机
To provide high-precision coreless motors and
motion control solutions to replace imported motors

企业核心价值观

Company Core Values

以技术创新为核心、以服务用户为中心
With technological innovation as the core and customer service as the center

企业愿景

Company Vision

做中国的 MAXON
To be the MAXON in China

PRODUCT APPLICATION SCENARIOS

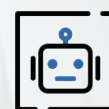
产品应用场景



医疗器械
Medical Instruments



工业自动化
Industrial Automation



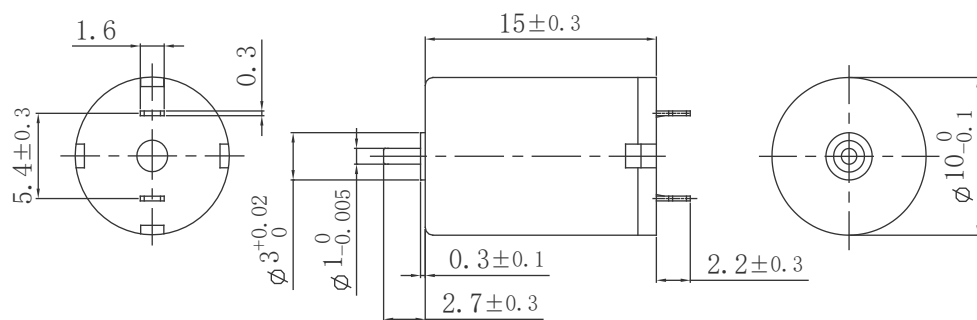
具身智能
Embodied Intelligence



电动工具
Power Tools



特种行业
Special Industries



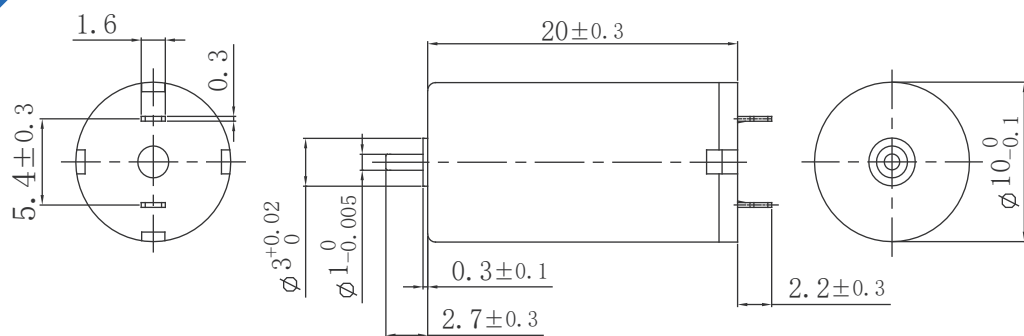
电机参数 Motor specifications		12A	11A	01A	15A
1 额定电压 (Nominal voltage)	V	3.7	6	7.4	12
2 空载转速 (No load speed)	rpm	15530	17500	33110	38100
3 空载电流 (No load current)	mA	50	40	70	50
4 额定转速 (Nominal speed)	rpm	11725	13212	24832	28575
5 额定转矩 (Nominal torque)	mNm	0.42	0.52	0.92	1.35
6 额定电流 (Nominal current)	A	0.22	0.19	0.48	0.49
7 堵转转矩 (Stall torque)	mNm	1.7	2.1	3.7	5.4
8 堵转电流 (Stall current)	A	0.76	0.64	1.72	1.8
9 相间电阻 (Terminal resistance)	Ω	4.86	9.32	4.3	6.67
10 转矩常数 (Torque constant)	mNm/A	2.23	3.21	2.03	2.95
11 速度常数 (Speed constant)	rpm/V	4197	2917	4474	3175
12 机械时间常数 (Mechanical time constant)	ms	1.06	1.04	1.1	1.11
13 转子惯量 (Rotor inertia)	gcm ²	0.118	0.116	0.12	0.122

可配减速箱 Optional gearbox

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	4.76g



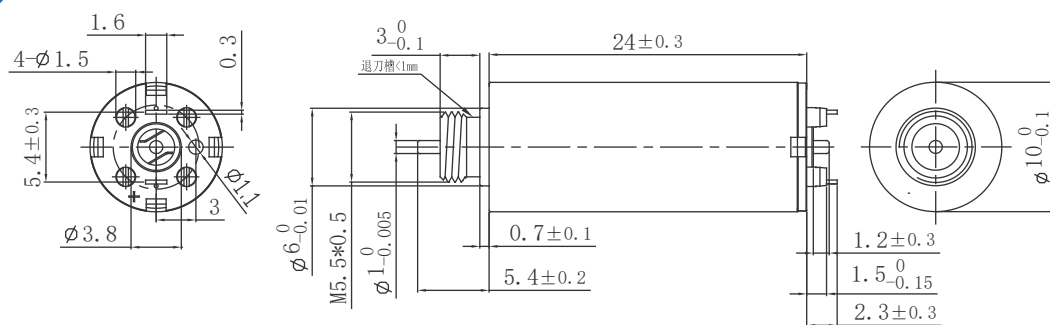
电机参数 Motor specifications		05A	06A	01A	08A
1 额定电压 (Nominal voltage)	V	3.7	6.0	7.4	12.0
2 空载转速 (No load speed)	rpm	27000	15220	24500	30000
3 空载电流 (No load current)	mA	80	35	45	30
4 额定转速 (Nominal speed)	rpm	25380	12480	22907	28200
5 额定转矩 (Nominal torque)	mNm	0.39	0.77	0.43	0.51
6 额定电流 (Nominal current)	A	0.37	0.23	0.19	0.16
7 堵转转矩 (Stall torque)	mNm	6.3	4.3	4.1	8.6
8 堵转电流 (Stall current)	A	4.93	1.14	2.2	2.24
9 相间电阻 (Terminal resistance)	Ω	0.75	5.27	3.25	5.35
10 转矩常数 (Torque constant)	mNm/A	1.28	3.68	2.82	3.4
11 速度常数 (Speed constant)	rpm/V	7297	2538	3310	2500
12 机械时间常数 (Mechanical time constant)	ms	5.0	5.8	5.6	6.3
13 转子惯量 (Rotor inertia)	gcm ²	0.167	0.163	0.161	0.166

可配减速箱 Optional gearbox

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	6.75g



电机参数 Motor specifications		07A	02A	01A	06A
1 额定电压 (Nominal voltage)	V	3	4.5	6	12
2 空载转速 (No load speed)	rpm	5500	16000	13500	13300
3 空载电流 (No load current)	mA	10	50	25	15
4 额定转速 (Nominal speed)	rpm	4413	12080	10800	10640
5 额定转矩 (Nominal torque)	mNm	0.34	1.24	0.82	0.75
6 额定电流 (Nominal current)	A	0.07	0.5	0.21	0.1
7 堵转转矩 (Stall torque)	mNm	1.7	5	4.1	3.7
8 堵转电流 (Stall current)	A	0.33	1.89	0.96	0.44
9 相间电阻 (Terminal resistance)	Ω	8.97	2.38	6.2	275
10 转矩常数 (Torque constant)	mNm/A	5.2	2.68	4.2	8.61
11 速度常数 (Speed constant)	rpm/V	1833	3555	2250	1108
12 机械时间常数 (Mechanical time constant)	ms	5.0	4.7	5.1	4.9
13 转子惯量 (Rotor inertia)	gcm ²	0.159	0.148	0.154	0.139

可配减速箱 Optional gearbox

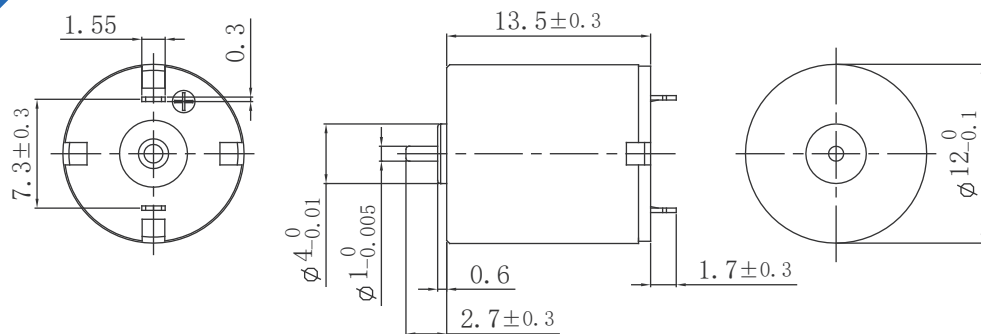
G10MF	见Page 89
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可配编码器 Optional encoder

EM10	增量式(Incremental) 1-1024ppr 1-3通道(channel)	见Page 99
EM10	绝对式(Absolute) 14 bit single turn	见Page 100

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	9.8g



电机参数 Motor specifications		06A	07A	04A	08A
1 额定电压 (Nominal voltage)	V	3.0	5.0	7.4	12
2 空载转速 (No load speed)	rpm	9400	7900	18000	25000
3 空载电流 (No load current)	mA	15	12	20	30
4 额定转速 (Nominal speed)	rpm	7191	5865	13590	21437
5 额定转矩 (Nominal torque)	mNm	0.27	0.25	0.55	0.12
6 额定电流 (Nominal current)	A	0.1	0.05	0.15	0.45
7 堵转转矩 (Stall torque)	mNm	1.1	1	2.2	3.1
8 堵转电流 (Stall current)	A	0.37	0.16	0.57	0.69
9 相间电阻 (Terminal resistance)	Ω	8.05	31.53	13	17.5
10 转矩常数 (Torque constant)	mNm/A	2.98	5.92	3.84	4.49
11 速度常数 (Speed constant)	rpm/V	3133	1580	2432	2083
12 机械时间常数 (Mechanical time constant)	ms	14.9	15.3	14.7	15.1
13 转子惯量 (Rotor inertia)	gcm ²	0.18	0.186	0.183	0.19

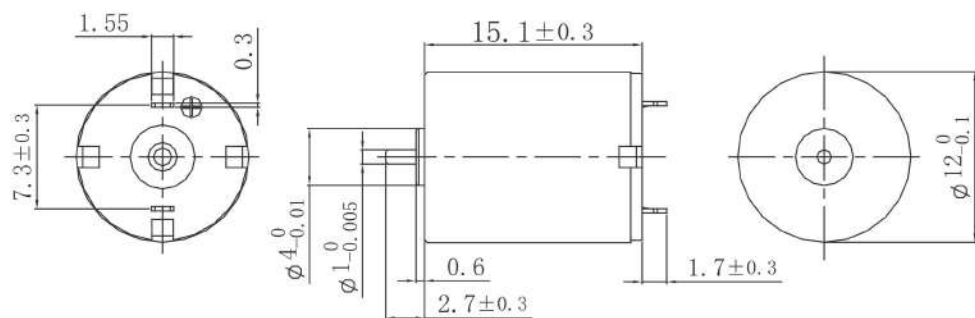
可配减速箱 Optional gearbox

G12MF	见Page 90
G12XL	见Page 91

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	5.8g



电机参数 Motor specifications		06A	01A	21A	78A
1 额定电压 (Nominal voltage)	V	4.5	6.0	7.4	12
2 空载转速 (No load speed)	rpm	20500	23000	28200	27200
3 空载电流 (No load current)	mA	35	35	40	30
4 额定转速 (Nominal speed)	rpm	15785	19780	25160	24480
5 额定转矩 (Nominal torque)	mNm	0.9	0.72	0.58	0.58
6 额定电流 (Nominal current)	A	0.46	0.32	0.27	0.17
7 堵转转矩 (Stall torque)	mNm	3.7	5.2	5.2	5.8
8 堵转电流 (Stall current)	A	1.88	2.07	2.1	1.39
9 相间电阻 (Terminal resistance)	Ω	2.4	2.9	3.52	8.66
10 转矩常数 (Torque constant)	mNm/A	2.05	2.44	2.45	4.12
11 速度常数 (Speed constant)	rpm/V	4555	5111	3810	2266
12 机械时间常数 (Mechanical time constant)	ms	12.8	11.0	13.2	11.4
13 转子惯量 (Rotor inertia)	gcm ²	0.246	0.251	0.249	0.245

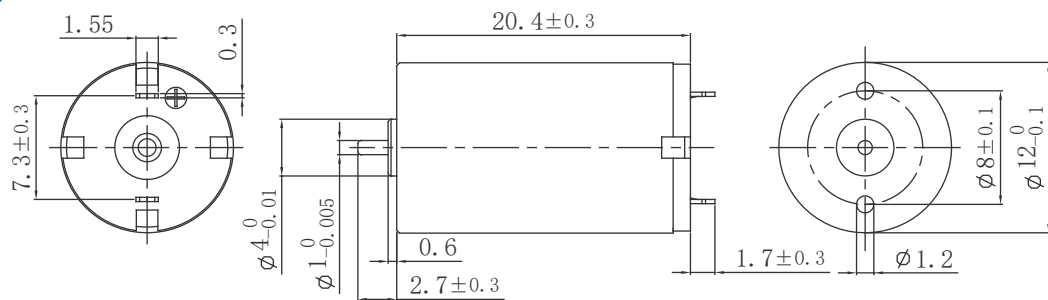
可配减速箱 Optional gearbox

G12MF	见Page 90
G12XL	见Page 91

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	6.85g



电机参数 Motor specifications		43A	40A	46A	41A
1 额定电压 (Nominal voltage)	V	3.3	6.0	7.4	12.0
2 空载转速 (No load speed)	rpm	14700	25830	29000	25000
3 空载电流 (No load current)	mA	42	45	40	40
4 额定转速 (Nominal speed)	rpm	11061	23634	26535	22875
5 额定转矩 (Nominal torque)	mNm	1.18	0.64	0.78	1.07
6 额定电流 (Nominal current)	A	0.58	0.33	0.35	0.27
7 堵转转矩 (Stall torque)	mNm	4.7	7.5	9.2	12.6
8 堵转电流 (Stall current)	A	2.21	3.37	3.76	2.76
9 相间电阻 (Terminal resistance)	Ω	1.49	1.78	1.97	4.35
10 转矩常数 (Torque constant)	mNm/A	2.1	2.17	2.39	4.49
11 速度常数 (Speed constant)	rpm/V	4454	4305	3918	2083
12 机械时间常数 (Mechanical time constant)	ms	7.8	8.8	8.1	5.1
13 转子惯量 (Rotor inertia)	gcm ²	0.253	0.251	0.255	0.258

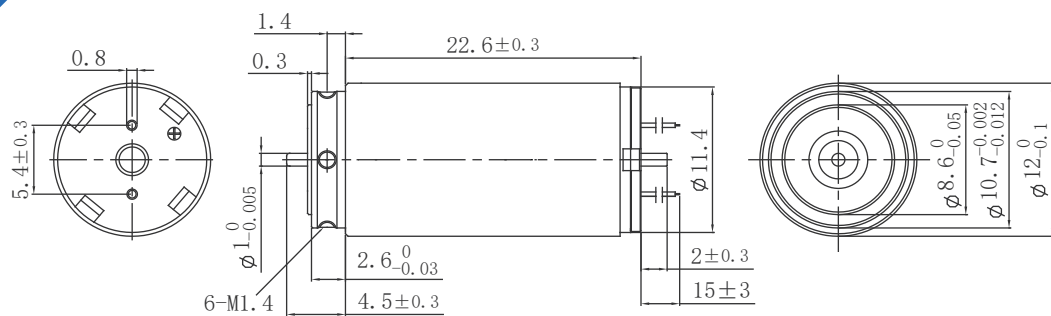
可配减速箱 Optional gearbox

G12MF	见Page 90
G12XL	见Page 91

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	9.69g



电机参数 Motor specifications		04A	03A	01A	05A
1 额定电压 (Nominal voltage)	V	3.0	6.0	7.0	12.0
2 空载转速 (No load speed)	rpm	13000	20000	18000	25000
3 空载电流 (No load current)	mA	25	60	25	75
4 额定转速 (Nominal speed)	rpm	9782	13545	13545	18812
5 额定转矩 (Nominal torque)	mNm	1.6	2.53	2.53	3.66
6 额定电流 (Nominal current)	A	0.75	0.7	0.7	0.85
7 堵转转矩 (Stall torque)	mNm	6.0	9.8	9.8	14.5
8 堵转电流 (Stall current)	A	2.94	2.76	2.76	3.23
9 相间电阻 (Terminal resistance)	Ω	1.02	1.72	2.54	3.71
10 转矩常数 (Torque constant)	mNm/A	2.16	2.8	3.64	4.49
11 速度常数 (Speed constant)	rpm/V	4333	3333	2571	2083
12 机械时间常数 (Mechanical time constant)	ms	6.2	6.5	5.9	5.6
13 转子惯量 (Rotor inertia)	gcm ²	0.31	0.325	0.333	0.33

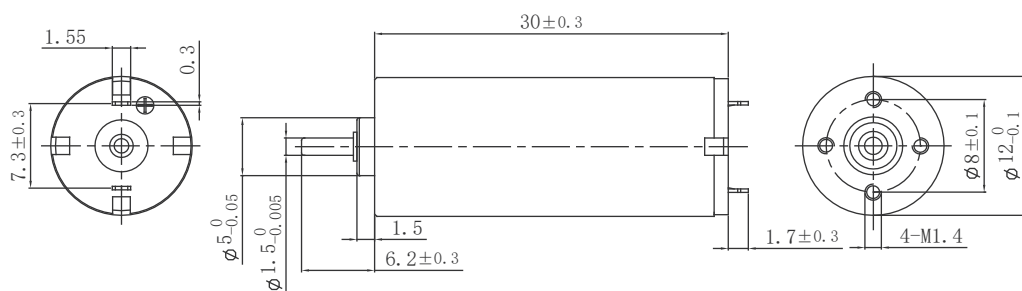
可配减速箱 Optional gearbox

G12MF	见Page 90
G12XL	见Page 91

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	12.88g



电机参数 Motor specifications		08A	03A	05A	01A
1 额定电压 (Nominal voltage)	V	3.6	5.0	7.4	12.0
2 空载转速 (No load speed)	rpm	14700	10200	27500	10200
3 空载电流 (No load current)	mA	65	30	90	20
4 额定转速 (Nominal speed)	rpm	12825	7930	25850	7624
5 额定转矩 (Nominal torque)	mNm	1.49	2.41	1.14	2.50
6 额定电流 (Nominal current)	A	0.69	0.53	0.53	0.23
7 堵转转矩 (Stall torque)	mNm	11.7	10.8	19	99
8 堵转电流 (Stall current)	A	5.0	2.31	7.4	0.88
9 相间电阻 (Terminal resistance)	Ω	0.72	2.16	1.0	13.6
10 转矩常数 (Torque constant)	mNm/A	2.29	4.58	2.52	11
11 速度常数 (Speed constant)	rpm/V	4083	2040	3716	850
12 机械时间常数 (Mechanical time constant)	ms	7.2	5.4	8.3	6.0
13 转子惯量 (Rotor inertia)	gcm ²	0.576	0.569	0.574	0.581

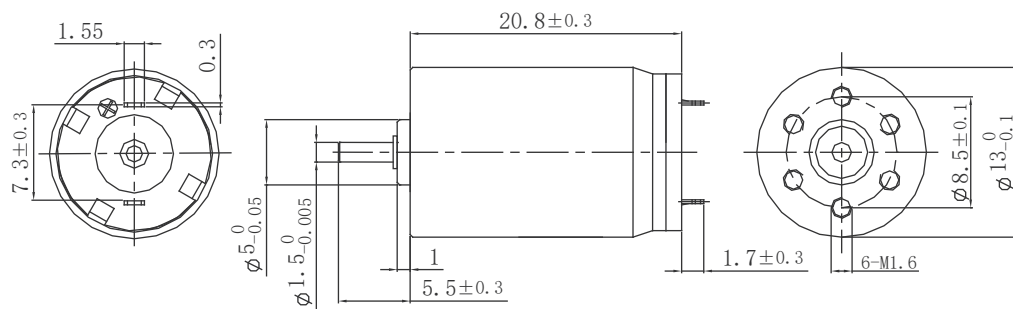
可配减速箱 Optional gearbox

G12MF	见Page 90
G12XL	见Page 91

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	16.28g



电机参数 Motor specifications		13A	06A	17A	09A
1 额定电压 (Nominal voltage)	V	4.0	6.0	7.4	12.0
2 空载转速 (No load speed)	rpm	13400	12000	15000	14000
3 空载电流 (No load current)	mA	45	30	30	25
4 额定转速 (Nominal speed)	rpm	10080	9030	11287	10640
5 额定转矩 (Nominal torque)	mNm	1.25	1.57	1.24	1.27
6 额定电流 (Nominal current)	A	0.47	0.35	0.29	0.17
7 堵转转矩 (Stall torque)	mNm	5.0	6.3	5.0	5.1
8 堵转电流 (Stall current)	A	1.77	1.32	1.06	0.65
9 相间电阻 (Terminal resistance)	Ω	2.26	4.53	6.96	18.53
10 转矩常数 (Torque constant)	mNm/A	2.79	4.68	4.62	8.02
11 速度常数 (Speed constant)	rpm/V	3350	2000	2027	1166
12 机械时间常数 (Mechanical time constant)	ms	12.9	12.8	13.1	12.7
13 转子惯量 (Rotor inertia)	gcm ²	0.487	0.482	0.492	0.479

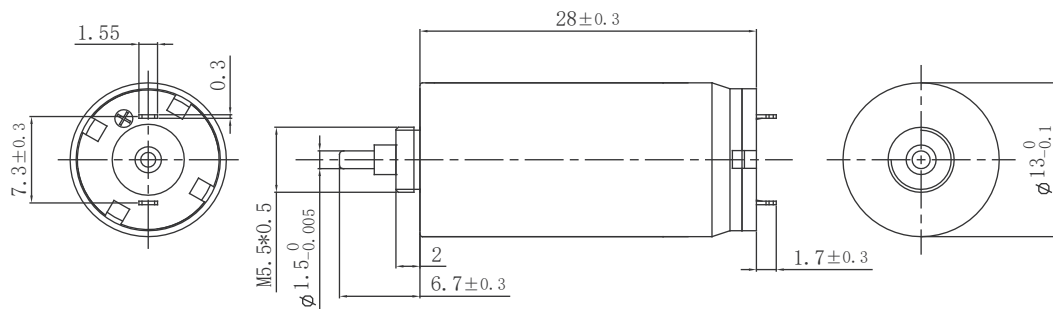
可配减速箱 Optional gearbox

- G13MF 见Page 92
- G13XL 见Page 93

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	12.43g



电机参数 Motor specifications		07A	08A	09A	05A
1 额定电压 (Nominal voltage)	V	3.0	6.0	7.4	12.0
2 空载转速 (No load speed)	rpm	10000	14950	12010	10000
3 空载电流 (No load current)	mA	40	55	30	10
4 额定转速 (Nominal speed)	rpm	7525	12450	9000	6725
5 额定转矩 (Nominal torque)	mNm	1.92	1.91	1.95	1.84
6 额定电流 (Nominal current)	A	0.7	0.55	0.37	0.17
7 堵转转矩 (Stall torque)	mNm	7.6	11.2	7.8	5.1
8 堵转电流 (Stall current)	A	2.70	2.94	1.33	0.49
9 相间电阻 (Terminal resistance)	Ω	1.11	2.04	5.58	24.5
10 转矩常数 (Torque constant)	mNm/A	2.8	3.74	5.77	11.23
11 速度常数 (Speed constant)	rpm/V	3333	2500	1621	833
12 机械时间常数 (Mechanical time constant)	ms	8.3	8.4	10.1	11.7
13 转子惯量 (Rotor inertia)	gcm ²	0.644	0.637	0.659	0.655

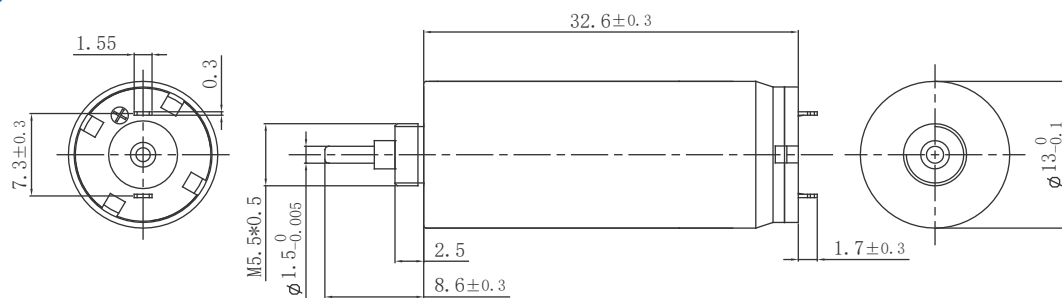
可配减速箱 Optional gearbox

G13MF	见Page 92
G13XL	见Page 93

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	17.1g



电机参数 Motor specifications		27A	24A	82A	75A
1 额定电压 (Nominal voltage)	V	3.5	5.0	12.0	24.0
2 空载转速 (No load speed)	rpm	10400	10000	8670	13200
3 空载电流 (No load current)	mA	45	30	15	15
4 额定转速 (Nominal speed)	rpm	7826	7525	6524	9933
5 额定转矩 (Nominal torque)	mNm	2.32	3.11	2.86	4.54
6 额定电流 (Nominal current)	A	0.76	0.67	0.23	0.27
7 堵转转矩 (Stall torque)	mNm	9.2	12.6	11.6	18.3
8 堵转电流 (Stall current)	A	2.92	2.63	0.87	1.06
9 相间电阻 (Terminal resistance)	Ω	1.2	1.9	13.73	22.72
10 转矩常数 (Torque constant)	mNm/A	3.15	4.68	12.95	17
11 速度常数 (Speed constant)	rpm/V	2971	2000	722	550
12 机械时间常数 (Mechanical time constant)	ms	6.6	4.7	4.4	4.2
13 转子惯量 (Rotor inertia)	gcm ²	0.593	0.588	0.589	0.586

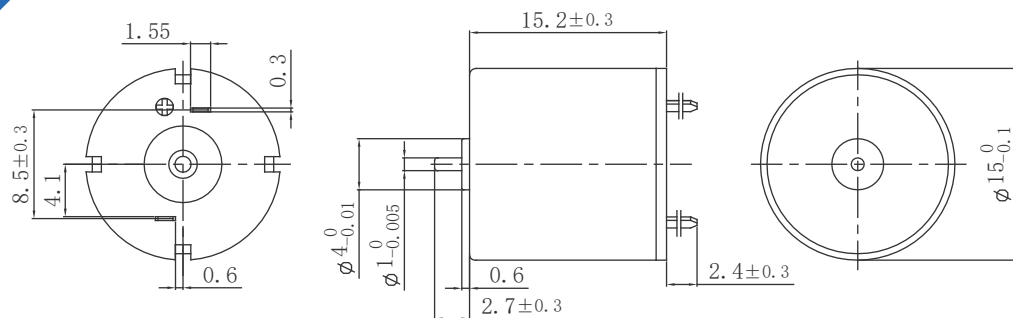
可配减速箱 Optional gearbox

G13MF	见Page 92
G13XL	见Page 93

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	21.43g



电机参数 Motor specifications

05A

20C

15A

24C

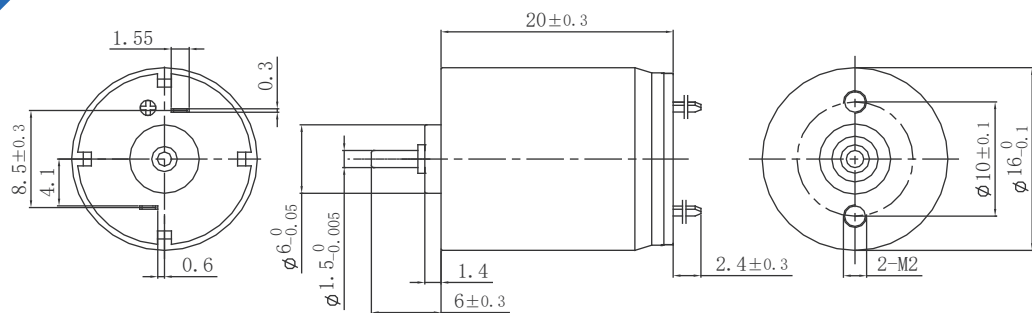
1 额定电压 (Nominal voltage)	V	5.0	7.4	8.4	12.0
2 空载转速 (No load speed)	rpm	21200	31000	20500	25000
3 空载电流 (No load current)	mA	55	70	25	30
4 额定转速 (Nominal speed)	rpm	15953	27900	15323	21187
5 额定转矩 (Nominal torque)	mNm	1.47	1.03	1.31	1.14
6 额定电流 (Nominal current)	A	0.69	0.51	0.35	0.27
7 堵转转矩 (Stall torque)	mNm	9.2	10.3	5.2	7.5
8 堵转电流 (Stall current)	A	2.63	4.51	1.32	1.63
9 相间电阻 (Terminal resistance)	Ω	1.9	1.64	6.36	7.38
10 转矩常数 (Torque constant)	mNm/A	2.2	2.23	3.83	4.49
11 速度常数 (Speed constant)	rpm/V	4240	4189	2440	2083
12 机械时间常数 (Mechanical time constant)	ms	16.2	13.7	18.3	15.4
13 转子惯量 (Rotor inertia)	gcm ²	0.452	0.456	0.461	0.459

可配减速箱 Optional gearbox

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	10.65g



电机参数 Motor specifications		19A	64A	75A	83A
1 额定电压 (Nominal voltage)	V	3.0	9.0	12.0	18.0
2 空载转速 (No load speed)	rpm	4500	13700	14900	11600
3 空载电流 (No load current)	mA	6	26	20	10
4 额定转速 (Nominal speed)	rpm	3408	10377	11175	8787
5 额定转矩 (Nominal torque)	mNm	0.65	1.67	1.95	1.75
6 额定电流 (Nominal current)	A	0.11	0.29	0.27	0.13
7 堵转转矩 (Stall torque)	mNm	2.6	6.8	7.7	7.2
8 堵转电流 (Stall current)	A	0.42	1.09	1.01	0.48
9 相间电阻 (Terminal resistance)	Ω	7.15	8.22	11.83	37
10 转矩常数 (Torque constant)	mNm/A	6.24	6.15	4.84	14.5
11 速度常数 (Speed constant)	rpm/V	1500	1522	1933	644
12 机械时间常数 (Mechanical time constant)	ms	13.8	16.2	9.0	12.7
13 转子惯量 (Rotor inertia)	gcm ²	0.82	0.813	0.823	0.79

可配减速箱 Optional gearbox

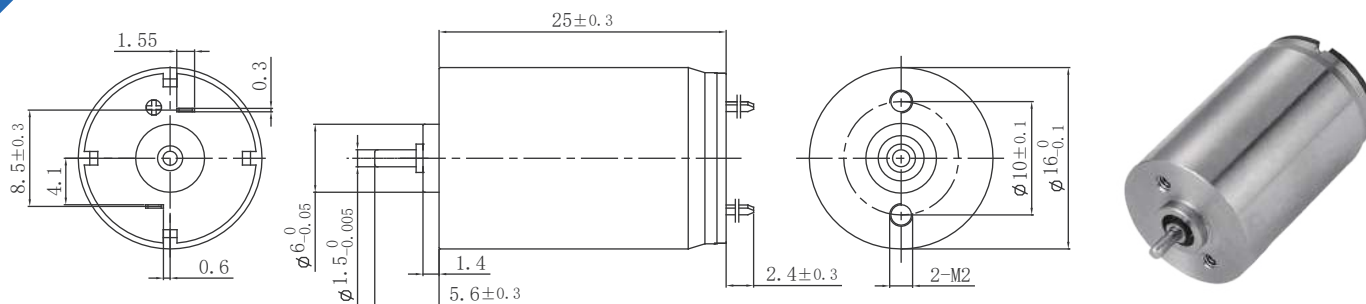
G16MF	见Page 94
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可配编码器 Optional encoder

EM16	增量式 (Incremental) 1-1024ppr 1-2通道 (channel)	见Page 101
EM16	绝对式 (Absolute) 14 bit single turn	见Page 102

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	19.16g



电机参数 Motor specifications		85A	21A	01A	17A
1 额定电压 (Nominal voltage)	V	3.8	6.0	12.0	24.0
2 空载转速 (No load speed)	rpm	18990	6400	10240	13300
3 空载电流 (No load current)	mA	100	10	15	10
4 额定转速 (Nominal speed)	rpm	16948	4848	8192	11138
5 额定转矩 (Nominal torque)	mNm	2.30	2.41	3.73	3.42
6 额定电流 (Nominal current)	A	1.29	0.27	0.34	0.21
7 堵转转矩 (Stall torque)	mNm	21.4	9.9	18.7	21.1
8 堵转电流 (Stall current)	A	11.18	1.11	1.67	1.23
9 相间电阻 (Terminal resistance)	Ω	0.34	5.4	7.2	19.58
10 转矩常数 (Torque constant)	mNm/A	1.87	8.77	10.96	16.88
11 速度常数 (Speed constant)	rpm/V	4997	1066	853	554
12 机械时间常数 (Mechanical time constant)	ms	8.5	5.8	5.0	5.2
13 转子惯量 (Rotor inertia)	gcm ²	0.96	0.89	0.91	0.83

可配减速箱 Optional gearbox

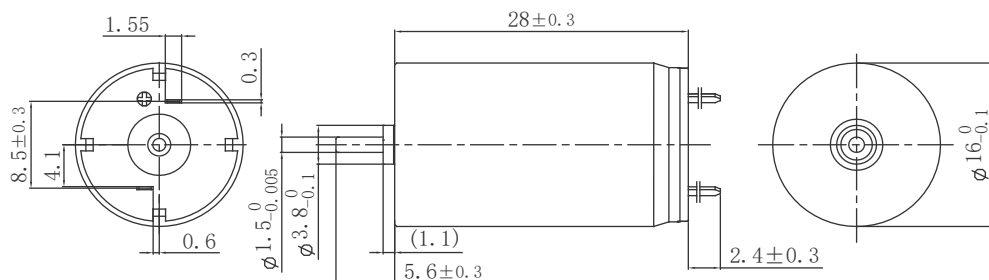
G16MF	见Page 94
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可配编码器 Optional encoder

EM16	增量式(Incremental) 1-1024ppr 1-2通道(channel)	见Page 101
EM16	绝对式(Absolute) 14 bit single turn	见Page 102

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	24.32g



电机参数 Motor specifications		02A	03A	01A	04A
1 额定电压 (Nominal voltage)	V	3.0	6.0	12.0	24.0
2 空载转速 (No load speed)	rpm	8000	9500	10000	12000
3 空载电流 (No load current)	mA	45	35	25	20
4 额定转速 (Nominal speed)	rpm	6420	7623	8025	9630
5 额定转矩 (Nominal torque)	mNm	4.0	4.31	5.84	5.94
6 额定电流 (Nominal current)	A	1.15	0.74	0.53	0.33
7 堵转转矩 (Stall torque)	mNm	20	21.4	29	21.1
8 堵转电流 (Stall current)	A	5.66	3.61	2.58	1.57
9 相间电阻 (Terminal resistance)	Ω	0.53	1.66	4.65	15.25
10 转矩常数 (Torque constant)	mNm/A	3.51	5.91	11.23	18.7
11 速度常数 (Speed constant)	rpm/V	2666	1583	833	500
12 机械时间常数 (Mechanical time constant)	ms	4.8	5.1	4.5	5.2
13 转子惯量 (Rotor inertia)	gcm ²	1.21	1.18	1.33	0.83

可配减速箱 Optional gearbox

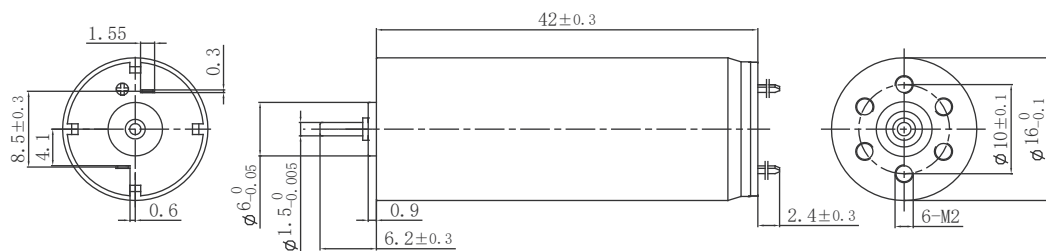
G16MF	见Page 94
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可配编码器 Optional encoder

EM16	增量式(Incremental) 1-1024ppr 1-2通道(channel)	见Page 101
EM16	绝对式(Absolute) 14 bit single turn	见Page 102

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	27.45g



电机参数 Motor specifications

24A

05A

32A

08A

1 额定电压 (Nominal voltage)	V	4.8	6.0	12.0	24.0
2 空载转速 (No load speed)	rpm	14400	13000	18500	13250
3 空载电流 (No load current)	mA	60	55	50	20
4 额定转速 (Nominal speed)	rpm	16948	11927	17250	11837
5 额定转矩 (Nominal torque)	mNm	2.30	3.21	3.35	4.4
6 额定电流 (Nominal current)	A	1.29	0.78	0.59	0.24
7 堵转转矩 (Stall torque)	mNm	21.4	38.9	49.6	40.0
8 堵转电流 (Stall current)	A	11.18	8.82	1.67	2.32
9 相间电阻 (Terminal resistance)	Ω	0.34	0.68	1.5	10.33
10 转矩常数 (Torque constant)	mNm/A	3.12	4.32	6.07	16.88
11 速度常数 (Speed constant)	rpm/V	3000	2166	1541	552
12 机械时间常数 (Mechanical time constant)	ms	4.7	4.5	5.7	4.9
13 转子惯量 (Rotor inertia)	gcm ²	1.48	1.36	1.53	1.48

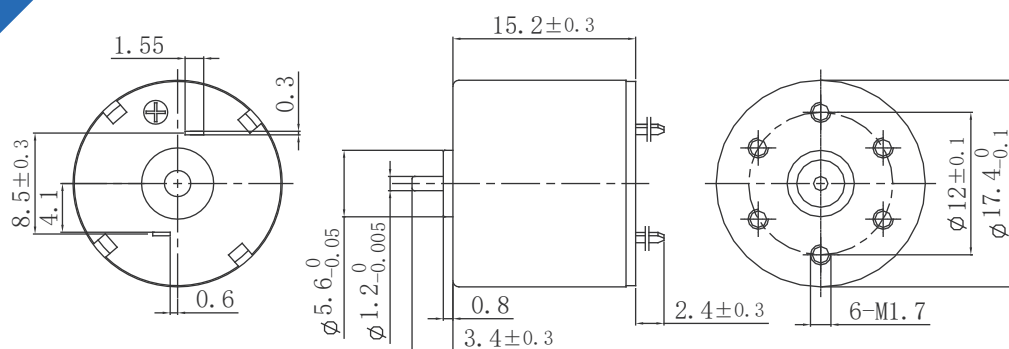
可配减速箱 Optional gearbox

G16MF	见Page 94	EM16	增量式 (Incremental) 1-1024ppr 1-2通道 (channel)	见Page 101
		EM16	绝对式 (Absolute) 14 bit single turn	见Page 102

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	38.87g



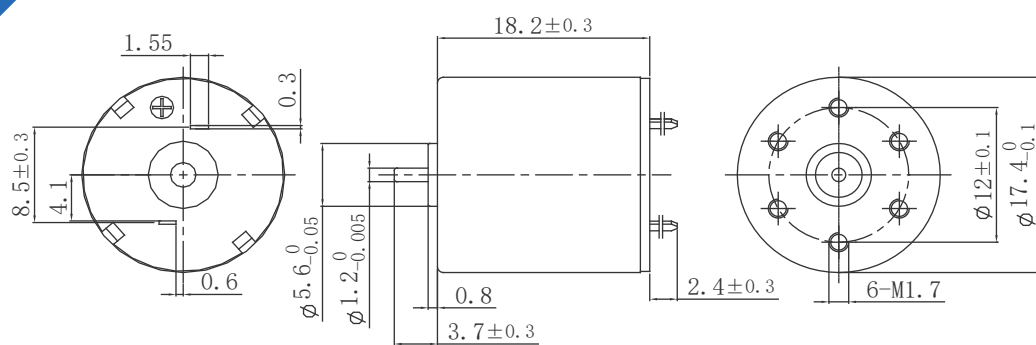
电机参数 Motor specifications		02A	24A	01A	18A
1 额定电压 (Nominal voltage)	V	5.0	6	7.4	12
2 空载转速 (No load speed)	rpm	21900	24300	26000	14850
3 空载电流 (No load current)	mA	70	65	65	15
4 额定转速 (Nominal speed)	rpm	18396	18285	23270	11137
5 额定转矩 (Nominal torque)	mNm	1.56	1.25	1.26	1.46
6 额定电流 (Nominal current)	A	0.77	0.58	0.52	0.2
7 堵转转矩 (Stall torque)	mNm	9.6	5.0	12.0	5.8
8 堵转电流 (Stall current)	A	4.46	0.64	4.4	0.75
9 相间电阻 (Terminal resistance)	Ω	1.12	2.8	1.68	15.9
10 转矩常数 (Torque constant)	mNm/A	2.14	2.31	2.66	7.56
11 速度常数 (Speed constant)	rpm/V	4380	4050	3513	1237
12 机械时间常数 (Mechanical time constant)	ms	13.4	27.7	12.7	15
13 转子惯量 (Rotor inertia)	gcm ²	0.594	0.576	0.586	0.589

可配减速箱 Optional gearbox

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	16g



电机参数 Motor specifications

01B

128B

99B

113B

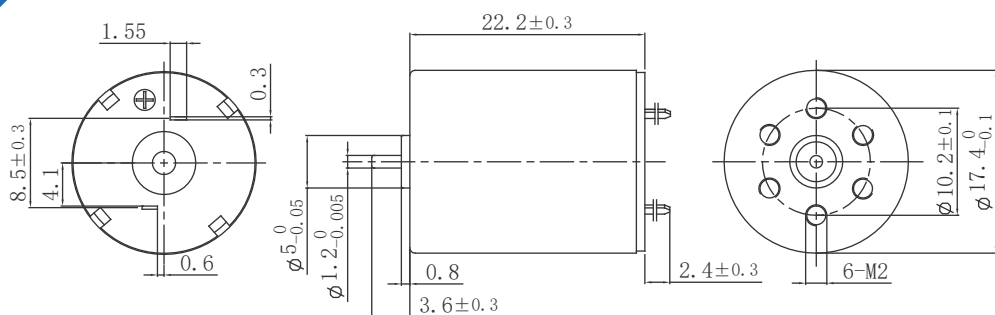
1 额定电压 (Nominal voltage)	V	5.0	7.4	12.0	15.0
2 空载转速 (No load speed)	rpm	17700	26200	23200	27200
3 空载电流 (No load current)	mA	50	75	40	40
4 额定转速 (Nominal speed)	rpm	14779	23973	21576	25290
5 额定转矩 (Nominal torque)	mNm	2.06	1.29	1.44	1.35
6 额定电流 (Nominal current)	A	0.84	0.55	0.33	0.29
7 堵转转矩 (Stall torque)	mNm	13.1	14.8	21.1	20.1
8 堵转电流 (Stall current)	A	4.85	5.61	4.32	3.81
9 相间电阻 (Terminal resistance)	Ω	1.03	1.32	2.78	3.94
10 转矩常数 (Torque constant)	mNm/A	2.64	2.64	4.84	5.16
11 速度常数 (Speed constant)	rpm/V	3540	3540	1933	1813
12 机械时间常数 (Mechanical time constant)	ms	11.4	14.1	9.0	11.1
13 转子惯量 (Rotor inertia)	gcm ²	0.845	0.814	0.823	0.819

可配减速箱 Optional gearbox

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	19.42g



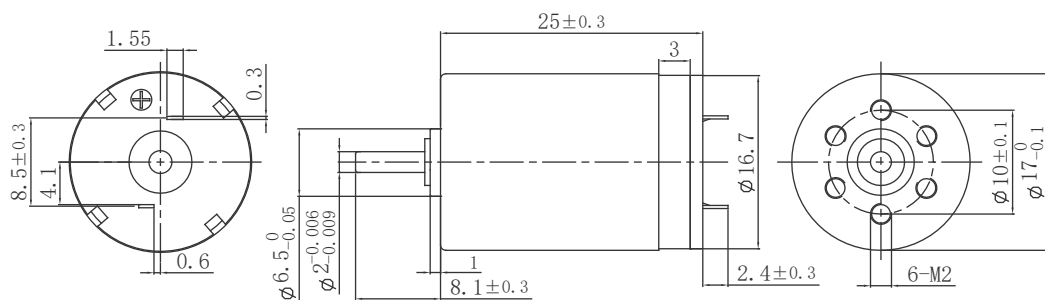
电机参数 Motor specifications		14A	56A	60A	73A
1 额定电压 (Nominal voltage)	V	5.5	7.4	12.0	18.0
2 空载转速 (No load speed)	rpm	14000	27000	27000	31300
3 空载电流 (No load current)	mA	45	80	50	55
4 额定转速 (Nominal speed)	rpm	11795	25852	25920	28874
5 额定转矩 (Nominal torque)	mNm	3.25	1.61	1.59	3.3
6 额定电流 (Nominal current)	A	0.9	0.69	0.42	0.65
7 堵转转矩 (Stall torque)	mNm	20.6	37.8	39.8	42.6
8 堵转电流 (Stall current)	A	5.5	14.51	9.38	7.76
9 相间电阻 (Terminal resistance)	Ω	1.0	0.51	1.28	2.32
10 转矩常数 (Torque constant)	mNm/A	3.67	2.56	4.16	5.38
11 速度常数 (Speed constant)	rpm/V	2545	3648	2250	1738
12 机械时间常数 (Mechanical time constant)	ms	6.5	6.6	6.3	6.5
13 转子惯量 (Rotor inertia)	gcm ²	0.955	0.923	0.927	0.88

可配减速箱 Optional gearbox

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	25.53g



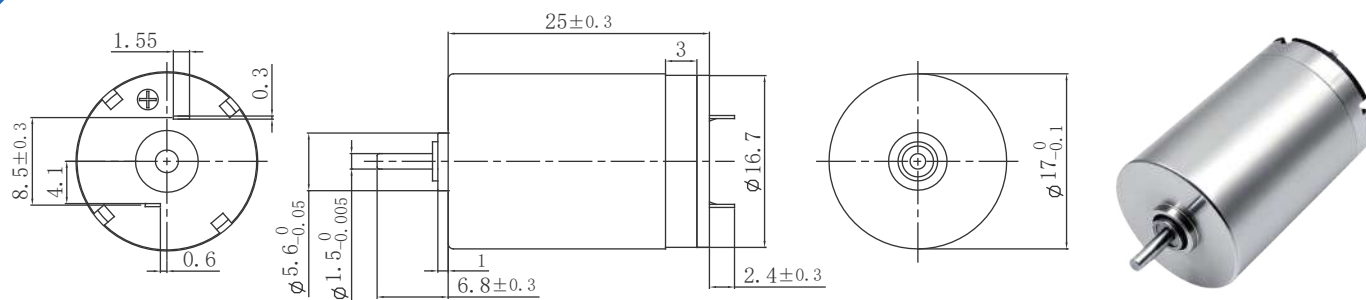
电机参数 Motor specifications		104B	04B	95B	65B
1 额定电压 (Nominal voltage)	V	6.0	8.0	12.0	12.0
2 空载转速 (No load speed)	rpm	7300	7500	8800	12000
3 空载电流 (No load current)	mA	35	25	20	35
4 额定转速 (Nominal speed)	rpm	5475	5625	6600	9000
5 额定转矩 (Nominal torque)	mNm	3.12	3.21	3.13	5.73
6 额定电流 (Nominal current)	A	0.42	0.33	0.26	0.64
7 堵转转矩 (Stall torque)	mNm	12.5	12.8	12.5	22.6
8 堵转电流 (Stall current)	A	1.59	1.26	0.96	2.4
9 相间电阻 (Terminal resistance)	Ω	3.77	6.35	12.48	5.0
10 转矩常数 (Torque constant)	mNm/A	7.69	9.98	12.76	9.35
11 速度常数 (Speed constant)	rpm/V	1216	937	733	1000
12 机械时间常数 (Mechanical time constant)	ms	8.8	8.4	11.4	8.2
13 转子惯量 (Rotor inertia)	gcm ²	1.5	1.43	1.62	1.57

可配减速箱 Optional gearbox

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	26.16g



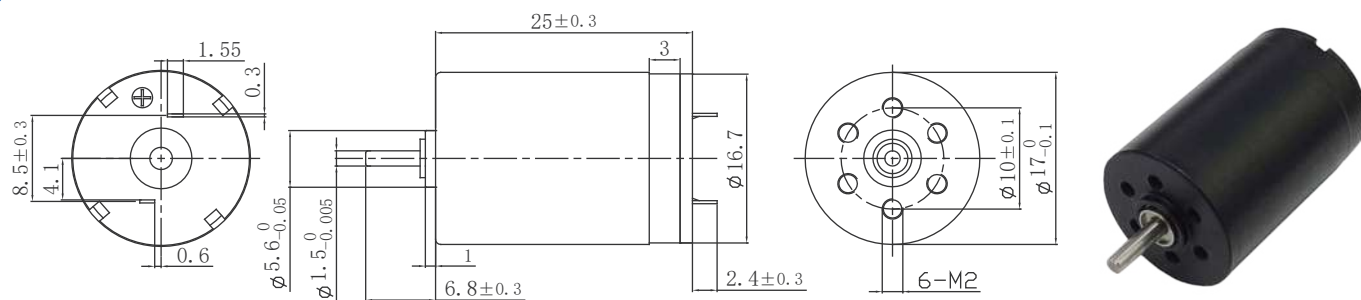
电机参数 Motor specifications		25A	109A	12A	18A
1 额定电压 (Nominal voltage)	V	6.0	7.4	12.0	24.0
2 空载转速 (No load speed)	rpm	21500	17660	23200	20090
3 空载电流 (No load current)	mA	65	70	55	55
4 额定转速 (Nominal speed)	rpm	19400	15187	21402	17980
5 额定转矩 (Nominal torque)	mNm	2.47	3.03	3.04	3.23
6 额定电流 (Nominal current)	A	0.99	0.82	0.67	0.31
7 堵转转矩 (Stall torque)	mNm	25.1	21.6	39.3	29.8
8 堵转电流 (Stall current)	A	9.52	5.4	7.95	2.7
9 相间电阻 (Terminal resistance)	Ω	0.63	1.37	1.51	8.89
10 转矩常数 (Torque constant)	mNm/A	2.61	3.92	4.84	11.18
11 速度常数 (Speed constant)	rpm/V	3583	2386	1933	837
12 机械时间常数 (Mechanical time constant)	ms	8.9	8.8	5.7	7.4
13 转子惯量 (Rotor inertia)	gcm ²	1.05	1.09	0.96	1.13

可配减速箱 Optional gearbox

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	24.93g



电机参数 Motor specifications

97A

27A

45A

04A

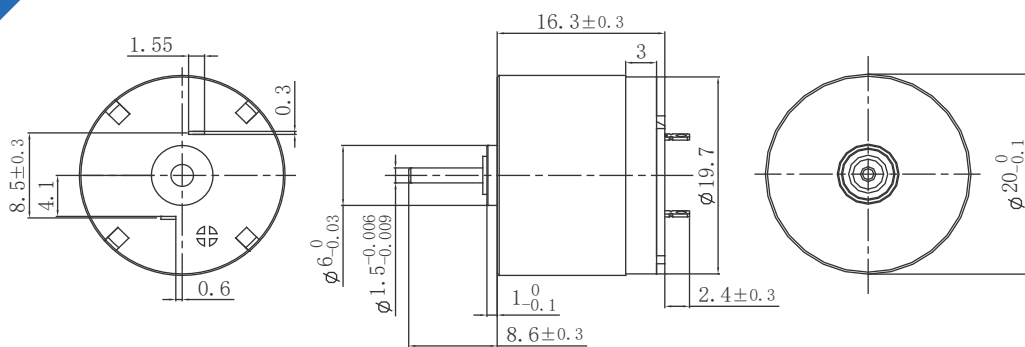
1 额定电压 (Nominal voltage)	V	5.8	8.0	9.0	12.0
2 空载转速 (No load speed)	rpm	9200	8000	9810	10000
3 空载电流 (No load current)	mA	30	25	20	15
4 额定转速 (Nominal speed)	rpm	7360	6000	7357	7500
5 额定转矩 (Nominal torque)	mNm	3.88	2.85	5.54	5.06
6 额定电流 (Nominal current)	A	0.67	0.32	0.64	0.45
7 堵转转矩 (Stall torque)	mNm	19.4	11.1	22.0	20.1
8 堵转电流 (Stall current)	A	3.22	1.19	2.53	1.76
9 相间电阻 (Terminal resistance)	Ω	1.8	6.7	3.56	6.8
10 转矩常数 (Torque constant)	mNm/A	5.9	9.36	8.58	11.23
11 速度常数 (Speed constant)	rpm/V	1586	1000	1090	833
12 机械时间常数 (Mechanical time constant)	ms	5.7	7.0	5.9	5.5
13 转子惯量 (Rotor inertia)	gcm ²	1.21	1	1.34	1.12

可配减速箱 Optional gearbox

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	25.09g



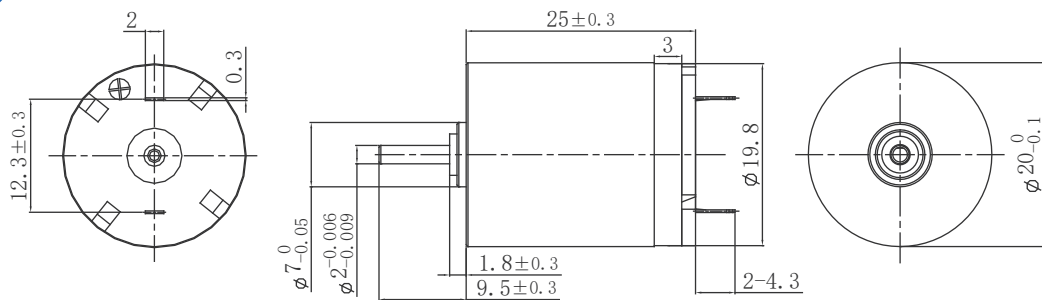
电机参数 Motor specifications		09A	10A	01A	11A
1 额定电压 (Nominal voltage)	V	6.0	8.0	12.0	12.0
2 空载转速 (No load speed)	rpm	7500	9000	11400	13000
3 空载电流 (No load current)	mA	15	18	20	25
4 额定转速 (Nominal speed)	rpm	5643	6772	8578	9782
5 额定转矩 (Nominal torque)	mNm	1.62	2.15	3.12	3.22
6 额定电流 (Nominal current)	A	0.22	0.36	0.32	0.38
7 堵转转矩 (Stall torque)	mNm	6.2	8.5	12.1	12.8
8 堵转电流 (Stall current)	A	0.82	1.02	1.25	1.48
9 相间电阻 (Terminal resistance)	Ω	7.0	7.82	9.57	8.13
10 转矩常数 (Torque constant)	mNm/A	7.48	8.32	9.85	8.63
11 速度常数 (Speed constant)	rpm/V	1250	1125	950	1083
12 机械时间常数 (Mechanical time constant)	ms	24.3	21	20.7	21.6
13 转子惯量 (Rotor inertia)	gcm ²	2.12	2.03	2.29	2.16

可配减速箱 Optional gearbox

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	22.77g



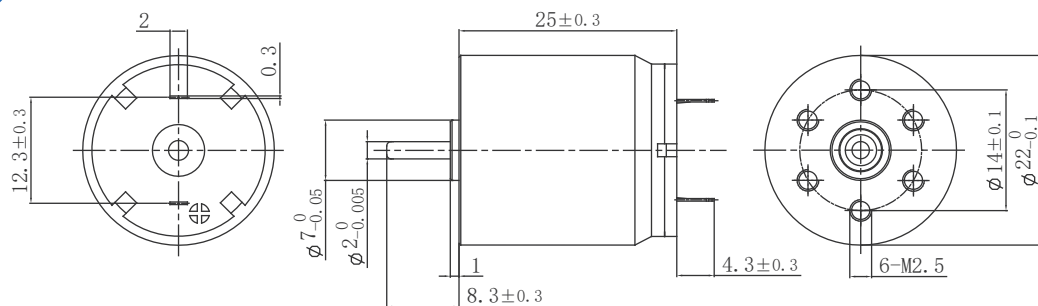
电机参数 Motor specifications		02A	03A	01A	04A
1 额定电压 (Nominal voltage)	V	6.0	7.4	12.0	24.0
2 空载转速 (No load speed)	rpm	8000	7500	10000	12000
3 空载电流 (No load current)	mA	30	25	25	20
4 额定转速 (Nominal speed)	rpm	6040	5662	7550	9060
5 额定转矩 (Nominal torque)	mNm	5.01	4.81	7.75	7.36
6 额定电流 (Nominal current)	A	0.72	0.53	0.69	0.4
7 堵转转矩 (Stall torque)	mNm	20	19.6	31.0	30
8 堵转电流 (Stall current)	A	2.86	2.08	2.76	1.57
9 相间电阻 (Terminal resistance)	Ω	2.1	3.55	4.35	15.25
10 转矩常数 (Torque constant)	mNm/A	7.02	9.23	11.23	18.72
11 速度常数 (Speed constant)	rpm/V	1333	1013	833	500
12 机械时间常数 (Mechanical time constant)	ms	13.5	12.9	11.1	14.6
13 转子惯量 (Rotor inertia)	gcm ²	3.46	3.37	3.51	3.65

可配减速箱 Optional gearbox

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	33.22g



电机参数 Motor specifications		43A	42A	13A	03A
1 额定电压 (Nominal voltage)	V	6.0	8.0	12.0	24.0
2 空载转速 (No load speed)	rpm	7850	9500	10800	10000
3 空载电流 (No load current)	mA	55	50	45	25
4 额定转速 (Nominal speed)	rpm	5946	7196	11175	7500
5 额定转矩 (Nominal torque)	mNm	6.99	7.61	8.03	8.54
6 额定电流 (Nominal current)	A	1	0.98	0.79	0.39
7 堵转转矩 (Stall torque)	mNm	28.7	31.4	40.1	34.2
8 堵转电流 (Stall current)	A	3.95	3.9	3.79	1.49
9 相间电阻 (Terminal resistance)	Ω	1.52	2.05	3.17	16.1
10 转矩常数 (Torque constant)	mNm/A	7.15	7.88	10.4	22.46
11 速度常数 (Speed constant)	rpm/V	1308	1187	900	416
12 机械时间常数 (Mechanical time constant)	ms	9.6	10.9	9.3	10.6
13 转子惯量 (Rotor inertia)	gcm ²	3.51	3.61	3.46	3.63

可配减速箱 Optional gearbox

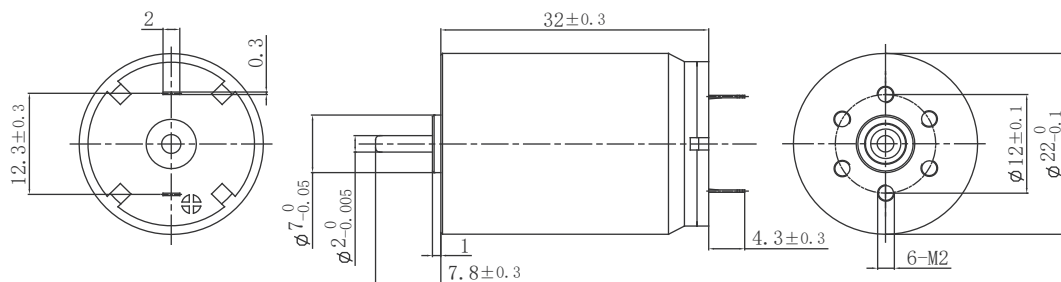
G22MF	见Page 95
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可配编码器 Optional encoder

EM22	增量式(Incremental) 1-1024ppr 1-3通道(channel)	见Page 103
EM22	绝对式(Absolute) 14 bit single turn	见Page 104

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	45g



电机参数 Motor specifications		65A	43A	04A	63A
1 额定电压 (Nominal voltage)	V	6.0	7.4	12.0	24.0
2 空载转速 (No load speed)	rpm	8100	8000	9900	8600
3 空载电流 (No load current)	mA	50	30	45	20
4 额定转速 (Nominal speed)	rpm	6459	6380	8761	6450
5 额定转矩 (Nominal torque)	mNm	8.19	8.27	8.28	13.57
6 额定电流 (Nominal current)	A	1.2	0.96	0.75	0.52
7 堵转转矩 (Stall torque)	mNm	40.1	40.3	71.6	54.1
8 堵转电流 (Stall current)	A	5.71	4.63	6.22	2.04
9 相间电阻 (Terminal resistance)	Ω	1.05	1.60	1.93	11.78
10 转矩常数 (Torque constant)	mNm/A	6.93	8.65	10.4	26.1
11 速度常数 (Speed constant)	rpm/V	1350	1081	900	358
12 机械时间常数 (Mechanical time constant)	ms	6.8	7.0	9.3	5.7
13 转子惯量 (Rotor inertia)	gcm ²	3.4	3.56	3.46	3.61

可配减速箱 Optional gearbox

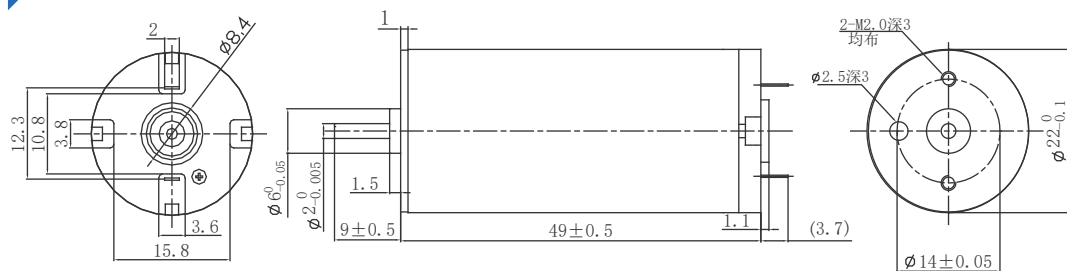
G22MF	见Page 95
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可配编码器 Optional encoder

EM22	增量式(Incremental) 1-1024ppr 1-3通道(channel)	见Page 103
EM22	绝对式(Absolute) 14 bit single turn	见Page 104

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	60.1g



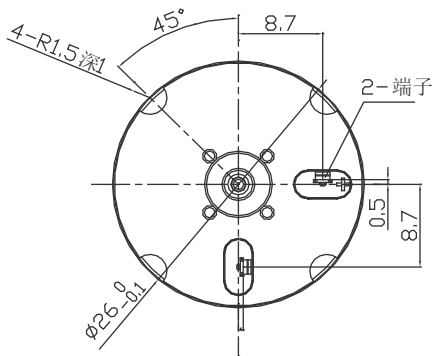
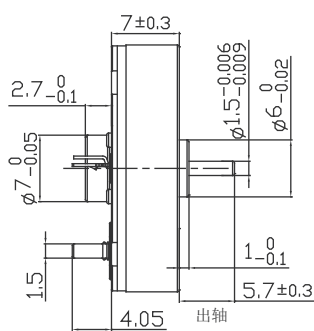
电机参数 Motor specifications		01A	03A	06A	07A
1 额定电压 (Nominal voltage)	V	6.0	12.0	24.0	48.0
2 空载转速 (No load speed)	rpm	6000	14760	10000	12400
3 空载电流 (No load current)	mA	50	130	30	20
4 额定转速 (Nominal speed)	rpm	4815	11808	8025	9951
5 额定转矩 (Nominal torque)	mNm	20.21	39.65	29.2	41.04
6 额定电流 (Nominal current)	A	2.16	5.21	1.3	1.13
7 堵转转矩 (Stall torque)	mNm	100	198	147	207
8 堵转电流 (Stall current)	A	10.71	25.53	6.22	5.62
9 相间电阻 (Terminal resistance)	Ω	0.56	0.47	3.72	8.54
10 转矩常数 (Torque constant)	mNm/A	9.36	3.8	22.46	36.2
11 速度常数 (Speed constant)	rpm/V	1000	1230	416	258
12 机械时间常数 (Mechanical time constant)	ms	4.7	5.9	5.4	4.6
13 转子惯量 (Rotor inertia)	gcm ²	8.03	7.86	7.96	7.68

可配减速箱 Optional gearbox

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	5	电机重量 (Weight of motor)	85.47g



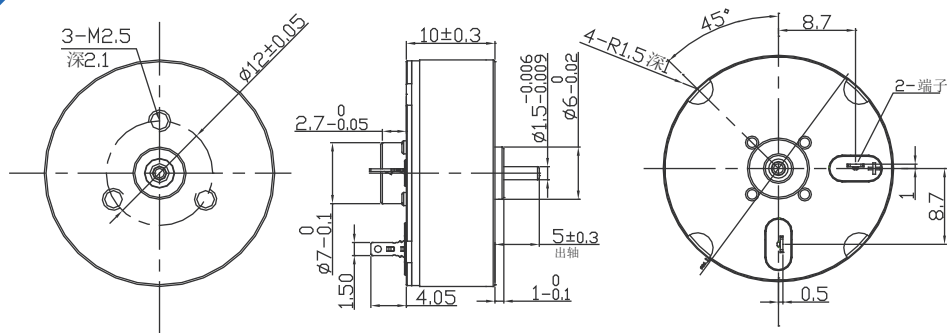
电机参数 Motor specifications		03A	04A	08A	01A
1 额定电压 (Nominal voltage)	V	6.0	9.0	12.0	12.0
2 空载转速 (No load speed)	rpm	7300	10900	6050	10650
3 空载电流 (No load current)	mA	15	20	6	20
4 额定转速 (Nominal speed)	rpm	5475	8175	4537	7987
5 额定转矩 (Nominal torque)	mNm	1.8	2.71	1.74	2.70
6 额定电流 (Nominal current)	A	0.24	0.36	0.1	0.27
7 堵转转矩 (Stall torque)	mNm	7.0	10.6	39.3	10.8
8 堵转电流 (Stall current)	A	0.92	1.38	7.95	1
9 相间电阻 (Terminal resistance)	Ω	6.54	6.54	32.74	1196
10 转矩常数 (Torque constant)	mNm/A	7.69	7.73	4.84	10.55
11 速度常数 (Speed constant)	rpm/V	1216	1211	1933	887
12 机械时间常数 (Mechanical time constant)	ms	1.6	1.6	1.7	1.5
13 转子惯量 (Rotor inertia)	gcm ²	0.156	0.156	0.19	0.15

可配减速箱 Optional gearbox

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearing)
极对数 (Number of pole pairs)	2	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	6	电机重量 (Weight of motor)	20.12g



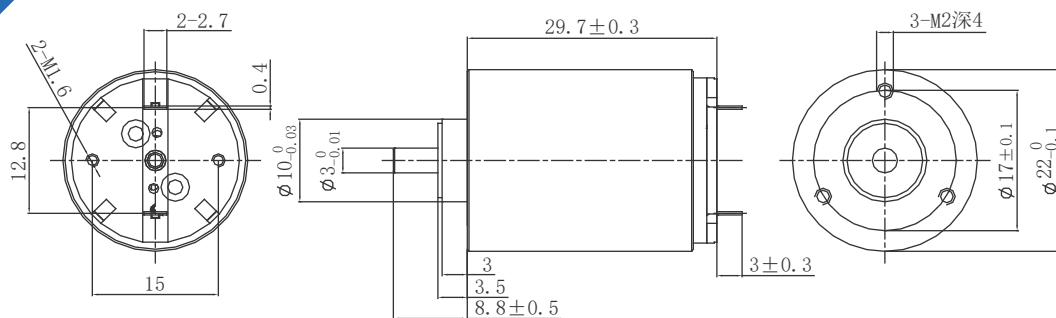
电机参数 Motor specifications		02A	03A	08A	01A
1 额定电压 (Nominal voltage)	V	3.0	6.0	12.0	12.0
2 空载转速 (No load speed)	rpm	8000	6500	8000	12100
3 空载电流 (No load current)	mA	65	25	15	20
4 额定转速 (Nominal speed)	rpm	6020	4891	6020	9105
5 额定转矩 (Nominal torque)	mNm	2.74	2.26	3.0	4.41
6 额定电流 (Nominal current)	A	0.81	0.36	0.22	0.48
7 堵转转矩 (Stall torque)	mNm	11.1	10.6	12.0	17.1
8 堵转电流 (Stall current)	A	3.09	1.38	0.85	1.88
9 相间电阻 (Terminal resistance)	Ω	0.97	5.79	14.2	6.38
10 转矩常数 (Torque constant)	mNm/A	3.51	7.73	7.89	9.28
11 速度常数 (Speed constant)	rpm/V	2666	1211	666	1008
12 机械时间常数 (Mechanical time constant)	ms	1.2	1.2	1.1	1.0
13 转子惯量 (Rotor inertia)	gcm ²	0.156	0.162	0.168	0.148

可配减速箱 Optional gearbox

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearing)
极对数 (Number of pole pairs)	2	电刷类型 (Brush type)	贵金属刷 (Precious metal brushes)
换向器片数 (Number of commutator segments)	6	电机重量 (Weight of motor)	32.1g

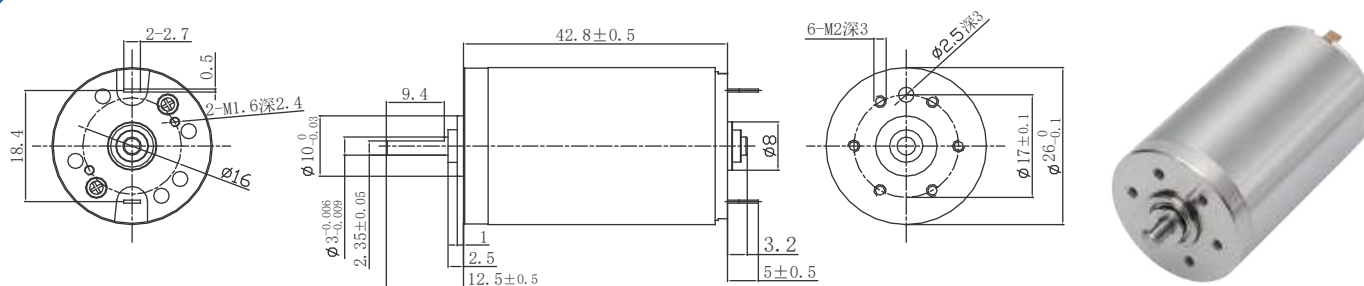


电机参数 Motor specifications		13A	14A	05A	11A
1 额定电压 (Nominal voltage)	V	6.0	12.0	15.0	24.0
2 空载转速 (No load speed)	rpm	8500	14500	8300	11600
3 空载电流 (No load current)	mA	60	60	30	30
4 额定转速 (Nominal speed)	rpm	6375	10875	6225	8700
5 额定转矩 (Nominal torque)	mNm	5.27	10.73	4.78	12.8
6 额定电流 (Nominal current)	A	0.83	1.4	0.3	0.67
7 堵转转矩 (Stall torque)	mNm	21	42.5	19	51
8 堵转电流 (Stall current)	A	3.13	5.43	1.11	2.59
9 相间电阻 (Terminal resistance)	Ω	1.92	2.21	13.54	9.26
10 转矩常数 (Torque constant)	mNm/A	6.6	8.55	16.91	19.36
11 速度常数 (Speed constant)	rpm/V	1416	1208	553	483
12 机械时间常数 (Mechanical time constant)	ms	19.4	16.7	21.6	10.8
13 转子惯量 (Rotor inertia)	gcm ²	4.81	4.93	4.97	4.78

可配减速箱 Optional gearbox
G22MF 见Page 95

可配编码器 Optional encoder

其他参数 Other specifications			
工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	碳刷 (Graphite brushes)
换向器片数 (Number of commutator segments)	7	电机重量 (Weight of motor)	61.11g



电机参数 Motor specifications		10A	20A	22A	29A
1 额定电压 (Nominal voltage)	V	4.5	12.0	24.0	29.0
2 空载转速 (No load speed)	rpm	5100	5200	7000	4600
3 空载电流 (No load current)	mA	145	50	35	20
4 额定转速 (Nominal speed)	rpm	3825	3900	5250	3450
5 额定转矩 (Nominal torque)	mNm	59.25	39.35	51.03	33.94
6 额定电流 (Nominal current)	A	7.14	1.82	1.58	0.58
7 堵转转矩 (Stall torque)	mNm	237	157	204	135
8 堵转电流 (Stall current)	A	28.13	7.14	6.23	2.26
9 相间电阻 (Terminal resistance)	Ω	0.16	1.68	3.85	12.86
10 转矩常数 (Torque constant)	mNm/A	8.25	21.6	32.1	59
11 速度常数 (Speed constant)	rpm/V	1133	433	291	158
12 机械时间常数 (Mechanical time constant)	ms	3.7	5.5	5.9	5.9
13 转子惯量 (Rotor inertia)	gcm ²	17.04	16.76	17.2	17.35

可配减速箱 Optional gearbox

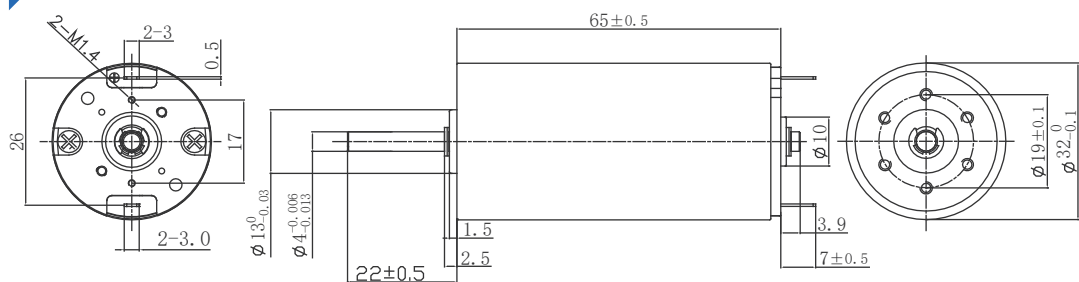
G22MF	见Page 95
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可配编码器 Optional encoder

EM22	增量式(Incremental) 1-1024ppr 1-3通道(channel)	见Page 103
EM22	绝对式(Absolute) 14 bit single turn	见Page 104

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	碳刷 (Graphite brushes)
换向器片数 (Number of commutator segments)	11	电机重量 (Weight of motor)	104.2g



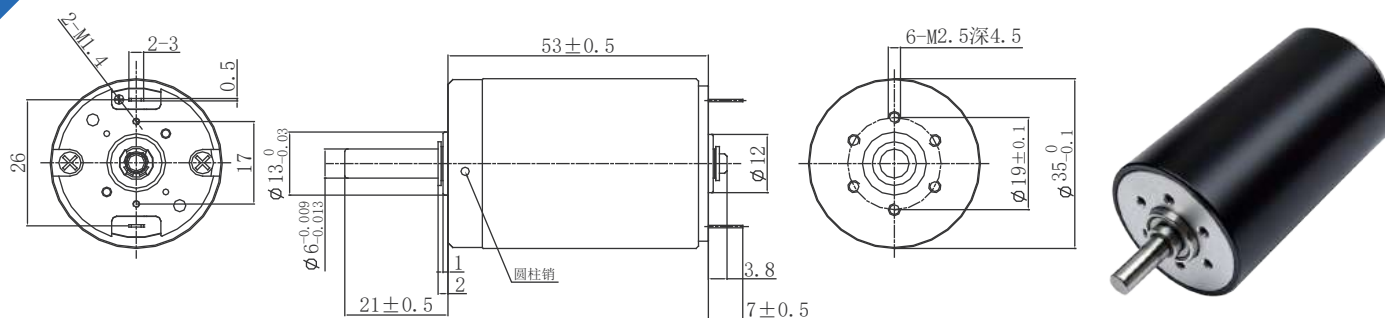
电机参数 Motor specifications		05A	02A	01A	03A
1 额定电压 (Nominal voltage)	V	12.0	12.0	24.0	48.0
2 空载转速 (No load speed)	rpm	4400	5200	5900	5900
3 空载电流 (No load current)	mA	65	120	80	30
4 额定转速 (Nominal speed)	rpm	3311	3913	4439	4439
5 额定转矩 (Nominal torque)	mNm	72.98	100.7	106.83	10745
6 额定电流 (Nominal current)	A	2.85	4.66	2.81	1.4
7 堵转转矩 (Stall torque)	mNm	294.9	406.9	431.6	1612
8 堵转电流 (Stall current)	A	11.32	18.46	11.11	26.37
9 相间电阻 (Terminal resistance)	Ω	1.06	0.64	2.16	8.59
10 转矩常数 (Torque constant)	mNm/A	25.52	21.6	38.07	60
11 速度常数 (Speed constant)	rpm/V	366	433	245.8	156.25
12 机械时间常数 (Mechanical time constant)	ms	6.9	6.1	6.5	6.4
13 转子惯量 (Rotor inertia)	gcm ²	46.6	47.63	47.3	46.98

可配减速箱 Optional gearbox

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	碳刷 (Graphite brushes)
换向器片数 (Number of commutator segments)	13	电机重量 (Weight of motor)	238.89g



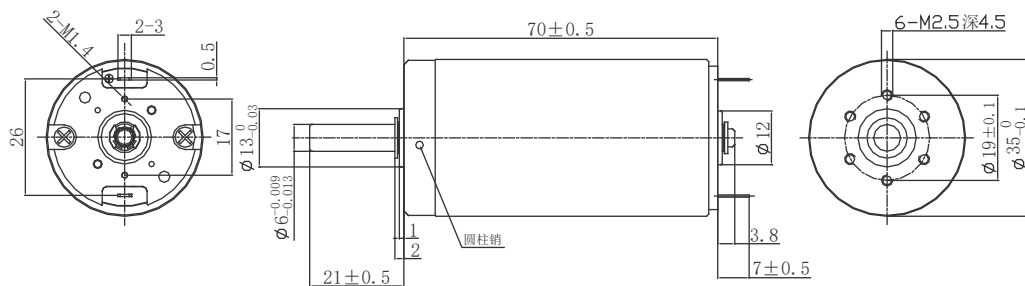
电机参数 Motor specifications		07A	11A	03A	12A
1 额定电压 (Nominal voltage)	V	6.0	12.0	24.0	48.0
2 空载转速 (No load speed)	rpm	5200	8900	7800	4600
3 空载电流 (No load current)	mA	210	180	130	30
4 额定转速 (Nominal speed)	rpm	3900	6675	5850	3450
5 额定转矩 (Nominal torque)	mNm	66.12	101.6	89	56.94
6 额定电流 (Nominal current)	A	6.16	8.03	3.13	0.6
7 堵转转矩 (Stall torque)	mNm	264	406	356	227
8 堵转电流 (Stall current)	A	24	31.58	12.12	2.29
9 相间电阻 (Terminal resistance)	Ω	0.25	0.38	1.98	21
10 转矩常数 (Torque constant)	mNm/A	10.8	12.6	28.8	97.7
11 速度常数 (Speed constant)	rpm/V	866	741	325	96
12 机械时间常数 (Mechanical time constant)	ms	11.4	12.6	12.8	12
13 转子惯量 (Rotor inertia)	gcm ²	58.1	57.5	58.6	59.3

可配减速箱 Optional gearbox

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	碳刷 (Graphite brushes)
换向器片数 (Number of commutator segments)	13	电机重量 (Weight of motor)	227.58g



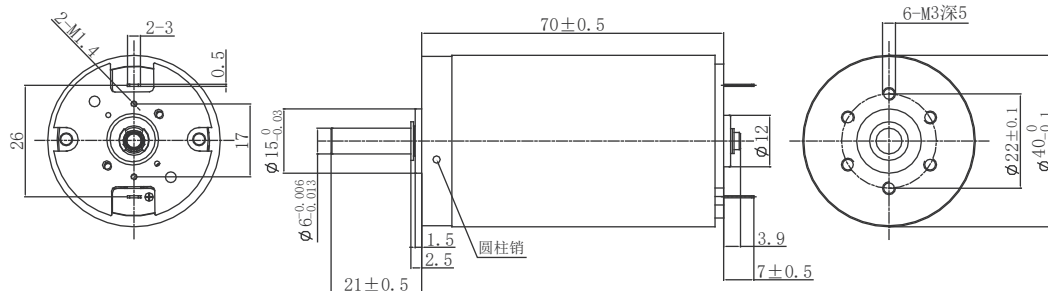
电机参数 Motor specifications		50A	12A	25A	42A
1 额定电压 (Nominal voltage)	V	12.0	15.0	24.0	30.0
2 空载转速 (No load speed)	rpm	4600	7700	7570	7800
3 空载电流 (No load current)	mA	180	190	210	120
4 额定转速 (Nominal speed)	rpm	3450	5775	5677	5850
5 额定转矩 (Nominal torque)	mNm	177.95	258.4	313.2	327.95
6 额定电流 (Nominal current)	A	7.28	14.03	10.5	9.02
7 堵转转矩 (Stall torque)	mNm	711.8	1033	1252	1298
8 堵转电流 (Stall current)	A	28.57	55.56	41.38	35.71
9 相间电阻 (Terminal resistance)	Ω	0.42	0.27	0.58	0.84
10 转矩常数 (Torque constant)	mNm/A	24.4	18.2	29.7	36
11 速度常数 (Speed constant)	rpm/V	383	513	315	260
12 机械时间常数 (Mechanical time constant)	ms	5.5	6.4	5.2	5.1
13 转子惯量 (Rotor inertia)	gcm ²	84.87	85.36	85.9	86.2

可配减速箱 Optional gearbox

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	碳刷 (Graphite brushes)
换向器片数 (Number of commutator segments)	13	电机重量 (Weight of motor)	318.92g



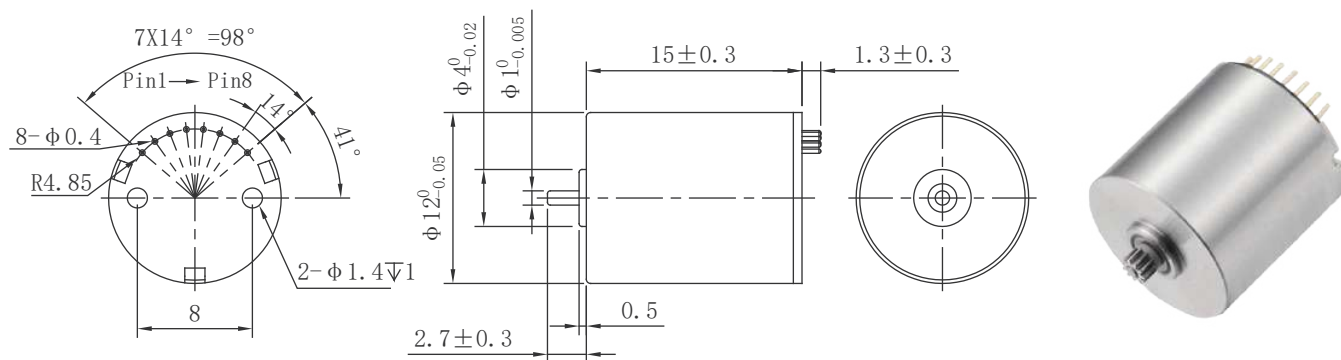
电机参数 Motor specifications		02A	18A	03A	04A
1 额定电压 (Nominal voltage)	V	12.0	18.0	24.0	48.0
2 空载转速 (No load speed)	rpm	4900	9800	7300	7500
3 空载电流 (No load current)	mA	190	330	120	70
4 额定转速 (Nominal speed)	rpm	3675	7350	5475	5625
5 额定转矩 (Nominal torque)	mNm	259.8	526	418.6	402.9
6 额定电流 (Nominal current)	A	11.25	30.25	13.42	6.65
7 堵转转矩 (Stall torque)	mNm	1039	2104	1674	1612
8 堵转电流 (Stall current)	A	44.44	120	53.33	26.37
9 相间电阻 (Terminal resistance)	Ω	0.27	0.15	0.45	1.82
10 转矩常数 (Torque constant)	mNm/A	22.92	17.2	30.77	60
11 速度常数 (Speed constant)	rpm/V	408	544	304	156.25
12 机械时间常数 (Mechanical time constant)	ms	6.5	6.4	6.0	6.4
13 转子惯量 (Rotor inertia)	gcm ²	137.64	138.24	137.92	138.59

可配减速箱 Optional gearbox

可配编码器 Optional encoder

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电刷类型 (Brush type)	碳刷 (Graphite brushes)
换向器片数 (Number of commutator segments)	13	电机重量 (Weight of motor)	409.48g



电机参数 Motor specifications		01A	03A	10A	02A
1 额定电压 (Nominal voltage)	V	7.4	7.4	7.4	12
2 空载转速 (No load speed)	rpm	36000	30000	43000	31500
3 空载电流 (No load current)	mA	140	90	200	100
4 额定转速 (Nominal speed)	rpm	31000	26000	37400	27000
5 额定转矩 (Nominal torque)	mNm	0.99	0.7	1.11	0.81
6 额定电流 (Nominal current)	A	0.63	0.37	0.85	0.31
7 堵转转矩 (Stall torque)	mNm	7.6	5.4	8.6	6.2
8 堵转电流 (Stall current)	A	3.87	2.28	5.21	1.71
9 相间电阻 (Terminal resistance)	Ω	1.91	3.25	1.42	7.02
10 转矩常数 (Torque constant)	mNm/A	1.92	2.3	2.03	3.56
11 速度常数 (Speed constant)	rpm/V	4864	4054	5810	2625
12 机械时间常数 (Mechanical time constant)	ms	4.04	4.78	4.29	4.33
13 转子惯量 (Rotor inertia)	gcm ²	0.09	0.09	0.09	0.09

可配减速箱 Optional gearbox

可配编码器 Optional encoder

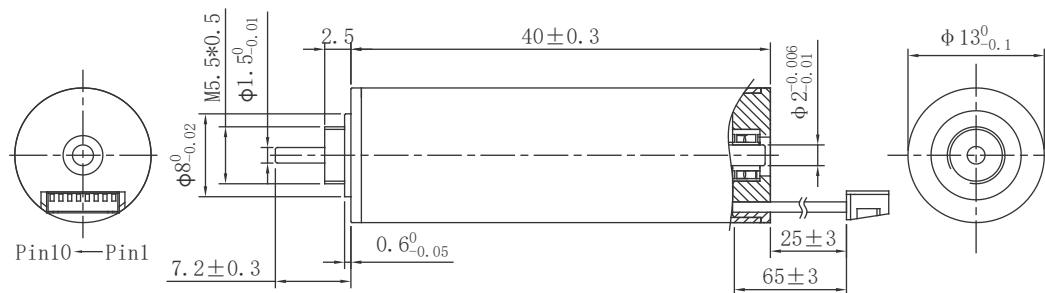
端子数据 Terminal data

端子型号 Terminal model: 8Pin 排针

- Pin 1 霍尔传感器 Hall sensor 1
- Pin 2 电机绕组 Motor winding 2
- Pin 3 霍尔传感器 Hall GND
- Pin 4 霍尔传感器 Hall sensor 3
- Pin 5 电机绕组 Motor winding 3
- Pin 6 霍尔传感器 Hall Vcc 3.3~5V
- Pin 7 霍尔传感器 Hall sensor 2
- Pin 8 电机绕组 Motor winding 1

其他参数 Other specifications

- 工作温度范围 (Operating temperature range) -20...+80°C
- 轴承类型 (Bearing type) 含油轴承 (Sleeve bearings)
- 极对数 (Number of pole pairs) 1
- 电机重量 (Weight of motor) 7.8g
- 相数 (Number of phases) 3



电机参数 Motor specifications

01A

03A

04A

02A

电机参数 (Motor specifications)	单位 (Unit)	01A	03A	04A	02A
1 额定电压 (Nominal voltage)	V	6	6	12	24
2 空载转速 (No load speed)	rpm	12500	10000	15000	24500
3 空载电流 (No load current)	mA	140	100	110	110
4 额定转速 (Nominal speed)	rpm	10800	8700	13000	21000
5 额定转矩 (Nominal torque)	mNm	2.48	2.39	2.74	4.75
6 额定电流 (Nominal current)	A	0.65	0.5	0.45	0.6
7 堵转转矩 (Stall torque)	mNm	19.1	18.4	21.1	36.6
8 堵转电流 (Stall current)	A	4.17	3.21	2.76	3.91
9 相间电阻 (Terminal resistance)	Ω	1.44	1.87	4.35	6.14
10 转矩常数 (Torque constant)	mNm/A	4.49	5.61	7.48	9.16
11 速度常数 (Speed constant)	rpm/V	2083	1666	1250	1020
12 机械时间常数 (Mechanical time constant)	ms	1.66	1.38	1.8	1.7
13 转子惯量 (Rotor inertia)	gcm ²	0.25	0.25	0.25	0.25

可配减速箱 Optional gearbox

G13MF 见Page 92
G13XL 见Page 93

可配编码器 Optional encoder

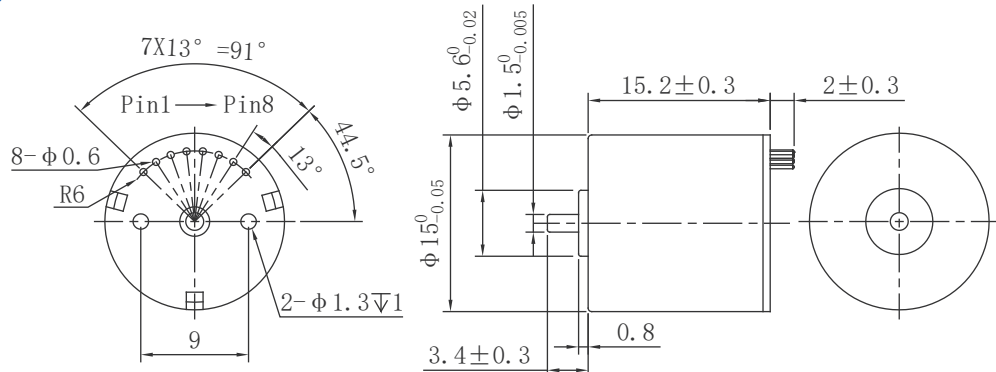
端子数据 Terminal data

端子型号Terminal model: MOLEX 51021-10 3302#28 间距1.25

Pin 1 电机绕组Motor winding 1 蓝色Blue	Pin 2 电机绕组Motor winding 3 灰色Gray	Pin 3 电机绕组Motor winding 2 红色Red
Pin 4 霍尔传感器Hall GND 黄色Yellow	Pin 5 霍尔传感器Hall sensor 2 白色White	Pin 6 霍尔传感器Hall sensor 3 棕色Brown
Pin 7 霍尔传感器Hall sensor 1 绿色Green	Pin 8 霍尔传感器Hall Vcc 3.3-5V 黑色Black	Pin 9 未连接Not connected 紫色Purple
Pin 10 未连接Not connected 橙色Orange		

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	25.2g
相数 (Number of phases)	3		



电机参数 Motor specifications		03A	06A	20A	14A
1 额定电压 (Nominal voltage)	V	7.4	7.4	7.4	12
2 空载转速 (No load speed)	rpm	37000	33500	41000	25000
3 空载电流 (No load current)	mA	200	200	250	100
4 额定转速 (Nominal speed)	rpm	32000	29000	35600	21700
5 额定转矩 (Nominal torque)	mNm	1.16	0.96	1.32	0.72
6 额定电流 (Nominal current)	A	0.78	0.63	0.98	0.24
7 堵转转矩 (Stall torque)	mNm	8.9	7.4	10.1	5.6
8 堵转电流 (Stall current)	A	4.68	3.51	5.87	1.21
9 相间电阻 (Terminal resistance)	Ω	1.58	2.11	1.26	99
10 转矩常数 (Torque constant)	mNm/A	1.87	2.06	1.68	4.49
11 速度常数 (Speed constant)	rpm/V	5000	4527	5540	2083
12 机械时间常数 (Mechanical time constant)	ms	6.95	7.61	6.81	7.56
13 转子惯量 (Rotor inertia)	gcm ²	0.17	0.17	0.17	0.17

可配减速箱 Optional gearbox

可配编码器 Optional encoder

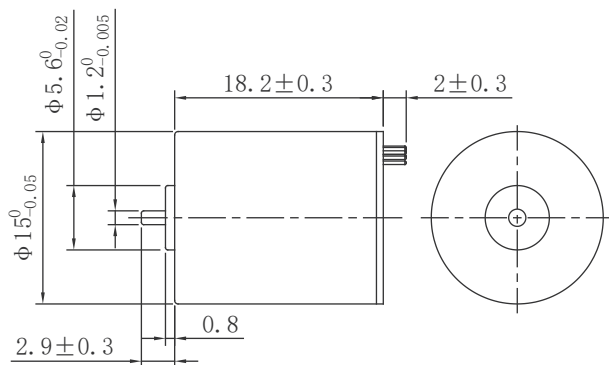
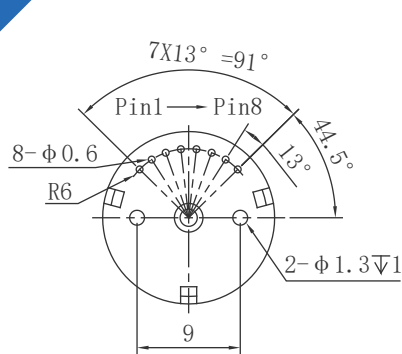
端子数据 Terminal data

端子型号 Terminal model: 8Pin 排针

Pin 1 电机绕组 Motor winding 1	Pin 2 霍尔传感器 Hall GND	Pin 3 霍尔传感器 Hall sensor 1	Pin 4 霍尔传感器 Hall sensor 3
Pin 5 电机绕组 Motor winding 2	Pin 6 霍尔传感器 Hall Vcc 3.3~5V	Pin 7 霍尔传感器 Hall sensor 2	Pin 8 电机绕组 Motor winding 3

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	12.5g
相数 (Number of phases)	3		



电机参数 Motor specifications		02A	04C	01A	05C
1 额定电压 (Nominal voltage)	V	7.4	7.4	12	12
2 空载转速 (No load speed)	rpm	37500	32000	31500	36500
3 空载电流 (No load current)	mA	270	180	150	160
4 额定转速 (Nominal speed)	rpm	32600	27800	27400	31700
5 额定转矩 (Nominal torque)	mNm	1.76	1.85	1.64	1.95
6 额定电流 (Nominal current)	A	1.17	0.99	0.58	0.76
7 堵转转矩 (Stall torque)	mNm	13.5	14.2	12.6	15
8 堵转电流 (Stall current)	A	7.18	6.43	3.47	4.78
9 相间电阻 (Terminal resistance)	Ω	1.03	1.15	3.46	2.51
10 转矩常数 (Torque constant)	mNm/A	1.84	2.16	3.56	3.07
11 速度常数 (Speed constant)	rpm/V	5067	4324	2625	3041
12 机械时间常数 (Mechanical time constant)	ms	6.56	5.33	5.91	5.76
13 转子惯量 (Rotor inertia)	gcm ²	0.24	0.24	0.24	0.24

可配减速箱 Optional gearbox

可配编码器 Optional encoder

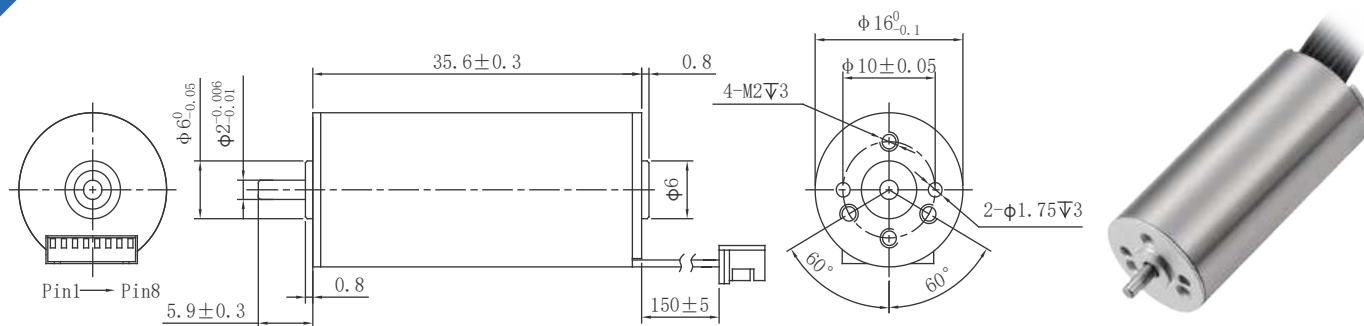
端子数据 Terminal data

端子型号 Terminal model: 8Pin 排针

Pin 1 电机绕组 Motor winding 1	Pin 2 霍尔传感器 Hall GND	Pin 3 霍尔传感器 Hall sensor 1	Pin 4 霍尔传感器 Hall sensor 3
Pin 5 电机绕组 Motor winding 2	Pin 6 霍尔传感器 Hall Vcc 3.3~5V	Pin 7 霍尔传感器 Hall sensor 2	Pin 8 电机绕组 Motor winding 3

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	16g
相数 (Number of phases)	3		



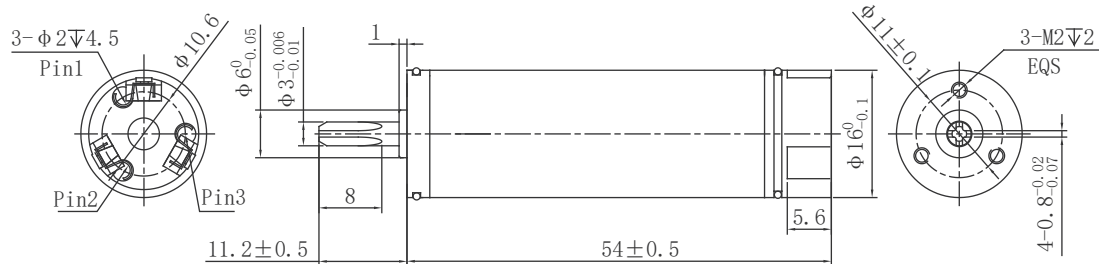
电机参数 Motor specifications		09A	12B	05B	10A
1 额定电压 (Nominal voltage)	V	6	8.4	12	24
2 空载转速 (No load speed)	rpm	12000	15000	21000	13200
3 空载电流 (No load current)	mA	160	120	120	80
4 额定转速 (Nominal speed)	rpm	10400	13000	18200	11000
5 额定转矩 (Nominal torque)	mNm	3	4.26	6.08	4.4
6 额定电流 (Nominal current)	A	0.78	0.9	1.22	0.32
7 堵转转矩 (Stall torque)	mNm	23.5	32.8	46.8	33.8
8 堵转电流 (Stall current)	A	4.92	6.13	8.57	1.95
9 相间电阻 (Terminal resistance)	Ω	1.22	1.37	1.4	12.32
10 转矩常数 (Torque constant)	mNm/A	4.67	5.24	5.34	1.7
11 速度常数 (Speed constant)	rpm/V	2000	1785	1750	550
12 机械时间常数 (Mechanical time constant)	ms	3.84	2.38	2.34	2.93
13 转子惯量 (Rotor inertia)	gcm ²	0.75	0.52	0.52	0.75

可配减速箱 Optional gearbox	
G16MF	见Page 94

可配编码器 Optional encoder		
EM16	增量式 (Incremental) 1-1024ppr 1-3通道 (channel)	见Page 101
EM16	绝对式 (Absolute) 14 bit single turn	见Page 102

端子数据 Terminal data			
端子型号 Terminal model: 8Pin-26# 3302 引线黑色+JST端子 PH2.0			
Pin 1 电机绕组 Motor winding 3	Pin 2 电机绕组 Motor winding 1	Pin 3 电机绕组 Motor winding 3	Pin 4 霍尔传感器 Hall GND
Pin 5 霍尔传感器 Hall sensor 1	Pin 6 霍尔传感器 Hall sensor 2	Pin 7 霍尔传感器 Hall sensor 3	Pin 8 霍尔传感器 Hall Vcc 3.3-5V

其他参数 Other specifications			
工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	38.1g
相数 (Number of phases)	3		



电机参数 Motor specifications		22XD	33XD	25XD	18XD
1 额定电压 (Nominal voltage)	V	12	12	24	24
2 空载转速 (No load speed)	rpm	30000	25000	26000	31000
3 空载电流 (No load current)	mA	130	120	80	80
4 额定转速 (Nominal speed)	rpm	26100	21700	22600	26900
5 额定转矩 (Nominal torque)	mNm	6.55	5.91	5.9	6.65
6 额定电流 (Nominal current)	A	1.82	1.39	0.74	0.97
7 堵转转矩 (Stall torque)	mNm	50.4	45.5	45.4	51.1
8 堵转电流 (Stall current)	A	13.19	9.92	5.15	6.92
9 相间电阻 (Terminal resistance)	Ω	0.91	1.21	4.66	3.47
10 转矩常数 (Torque constant)	mNm/A	3.74	4.49	8.63	7.24
11 速度常数 (Speed constant)	rpm/V	2500	2083	1083	1291
12 机械时间常数 (Mechanical time constant)	ms	2.36	2.18	2.27	2.4
13 转子惯量 (Rotor inertia)	gcm ²	0.4	0.4	0.4	0.4

可配减速箱 Optional gearbox

可配编码器 Optional encoder

端子数据 Terminal data

端子型号 Terminal model:

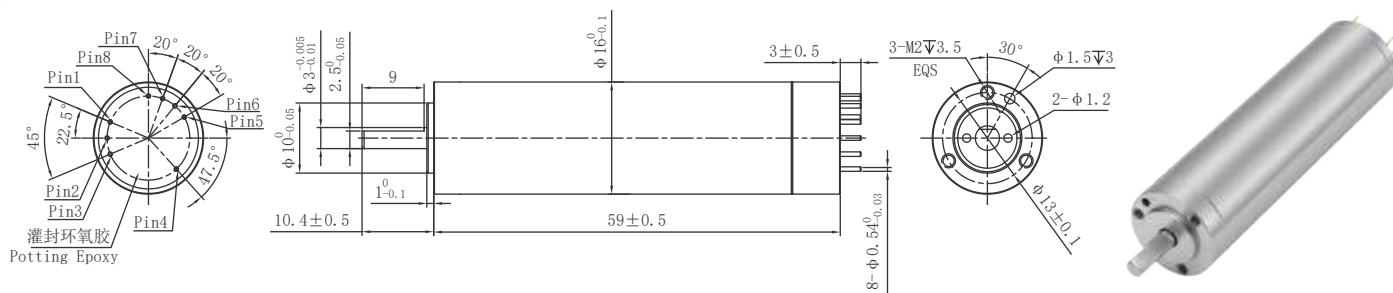
Pin 1 电机绕组 Motor winding 1

Pin 2 电机绕组 Motor winding 2

Pin 3 电机绕组 Motor winding 3

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	44.6g
相数 (Number of phases)	3		



电机参数 Motor specifications		02A	03A	01A	04A
1 额定电压 (Nominal voltage)	V	12	12	24	24
2 空载转速 (No load speed)	rpm	12000	25500	42000	57200
3 空载电流 (No load current)	mA	70	250	200	240
4 额定转速 (Nominal speed)	rpm	10400	22000	36500	49700
5 额定转矩 (Nominal torque)	mNm	9.2	15.24	35.47	48
6 额定电流 (Nominal current)	A	1.02	3.61	6.67	12.2
7 堵转转矩 (Stall torque)	mNm	70.7	117.2	272.9	369.9
8 堵转电流 (Stall current)	A	7.41	26.09	50	92.31
9 相间电阻 (Terminal resistance)	Ω	1.62	0.46	0.48	0.26
10 转矩常数 (Torque constant)	mNm/A	9.35	4.4	5.34	3.92
11 速度常数 (Speed constant)	rpm/V	1000	2125	1750	2383
12 机械时间常数 (Mechanical time constant)	ms	1.64	2.1	1.49	1.5
13 转子惯量 (Rotor inertia)	gcm ²	0.97	0.97	0.97	0.97

可配减速箱 Optional gearbox

可配编码器 Optional encoder

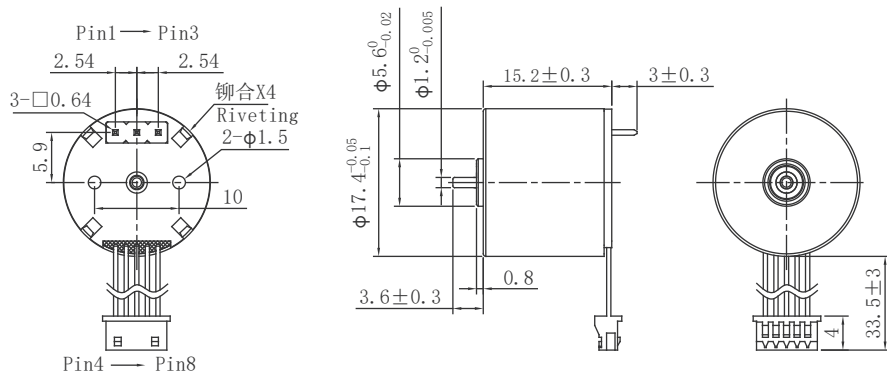
端子数据 Terminal data

端子型号 Terminal model: 8Pin 铜针

- Pin 1 电机绕组 Motor winding 1
- Pin 2 电机绕组 Motor winding 2
- Pin 3 电机绕组 Motor winding 3
- Pin 4 霍尔传感器 Hall Vcc 3.3-5V
- Pin 5 霍尔传感器 Hall GND
- Pin 6 霍尔传感器 Hall sensor 1
- Pin 7 霍尔传感器 Hall sensor 2
- Pin 8 霍尔传感器 Hall sensor 3

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	65g
相数 (Number of phases)	3		



电机参数 Motor specifications		01C	04C	05C	22C
1 额定电压 (Nominal voltage)	V	6	6	6	74
2 空载转速 (No load speed)	rpm	32500	27000	34000	34500
3 空载电流 (No load current)	mA	170	150	230	170
4 额定转速 (Nominal speed)	rpm	27900	23200	29200	29600
5 额定转矩 (Nominal torque)	mNm	1.21	1.1	1.56	1.23
6 额定电流 (Nominal current)	A	0.83	0.65	1.12	0.75
7 堵转转矩 (Stall torque)	mNm	8.7	7.9	11.1	8.8
8 堵转电流 (Stall current)	A	4.92	3.7	6.59	4.3
9 相间电阻 (Terminal resistance)	Ω	1.22	1.62	0.91	1.72
10 转矩常数 (Torque constant)	mNm/A	1.72	2.08	1.65	2.01
11 速度常数 (Speed constant)	rpm/V	5416	4500	5666	4662
12 机械时间常数 (Mechanical time constant)	ms	6.29	5.76	5.13	6.57
13 转子惯量 (Rotor inertia)	gcm ²	0.17	0.17	0.17	0.17

可配减速箱 Optional gearbox

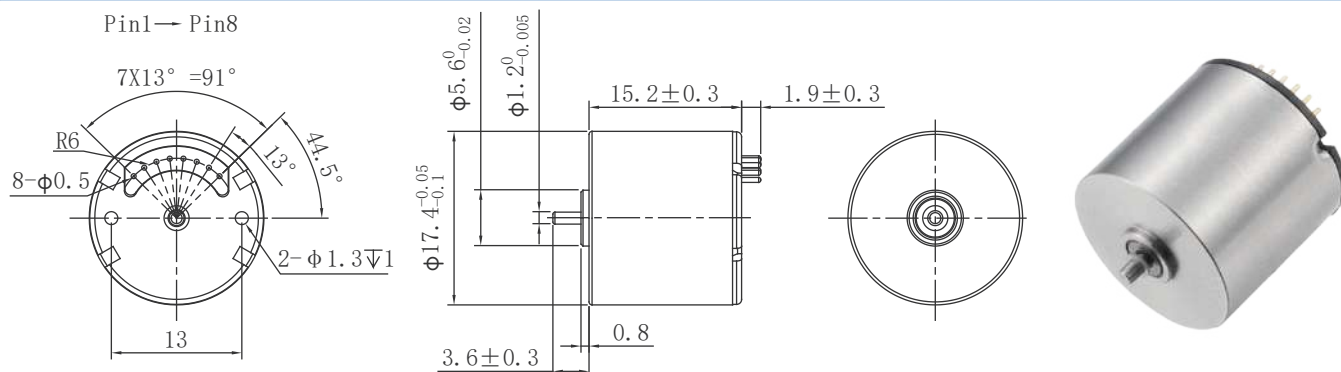
可配编码器 Optional encoder

端子数据 Terminal data

端子型号 Terminal model: Pin 1 ~ Pin 3 单排针间距2.0mm 3Pin	Pin 4 ~ Pin 8 MOLEX51021-0500端子间距1.25mm 5Pin
Pin 1 电机绕组 Motor winding 2	Pin 2 电机绕组 Motor winding 3
Pin 3 电机绕组 Motor winding 1	Pin 4 霍尔传感器 Hall Vcc 3.3-5V
Pin 5 霍尔传感器 Hall GND	Pin 6 霍尔传感器 Hall sensor 3
	Pin 7 霍尔传感器 Hall sensor 1
	Pin 8 霍尔传感器 Hall sensor 2

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	17.5g
相数 (Number of phases)	3		



电机参数 Motor specifications		01C	04C	05C	22C
1 额定电压 (Nominal voltage)	V	6	6	6	74
2 空载转速 (No load speed)	rpm	32500	27000	34000	34500
3 空载电流 (No load current)	mA	170	150	230	170
4 额定转速 (Nominal speed)	rpm	27900	23200	29200	29600
5 额定转矩 (Nominal torque)	mNm	1.21	1.1	1.56	1.23
6 额定电流 (Nominal current)	A	0.83	0.65	1.12	0.75
7 堵转转矩 (Stall torque)	mNm	8.7	7.9	11.1	8.8
8 堵转电流 (Stall current)	A	4.92	3.7	6.59	4.3
9 相间电阻 (Terminal resistance)	Ω	1.22	1.62	0.91	1.72
10 转矩常数 (Torque constant)	mNm/A	1.72	2.08	1.65	2.01
11 速度常数 (Speed constant)	rpm/V	5416	4500	5666	4662
12 机械时间常数 (Mechanical time constant)	ms	6.29	5.76	5.13	6.57
13 转子惯量 (Rotor inertia)	gcm ²	0.17	0.17	0.17	0.17

可配减速箱 Optional gearbox

可配编码器 Optional encoder

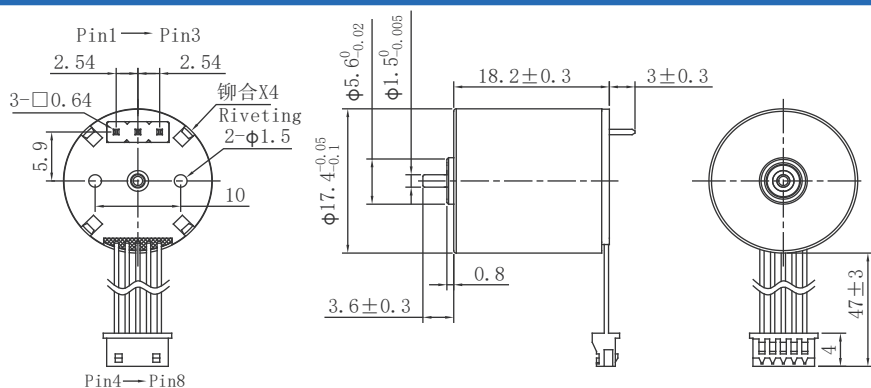
端子数据 Terminal data

端子型号 Terminal model: 8Pin 排针

Pin 1 电机绕组 Motor winding 1	Pin 2 霍尔传感器 Hall GND	Pin 3 霍尔传感器 Hall sensor 1	Pin 4 霍尔传感器 Hall sensor 3
Pin 5 电机绕组 Motor winding 2	Pin 6 霍尔传感器 Hall Vcc 3.3~5V	Pin 7 霍尔传感器 Hall sensor 2	Pin 8 电机绕组 Motor winding 3

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	16.5g
相数 (Number of phases)	3		



电机参数 Motor specifications		01A	14A	43A	62A
1 额定电压 (Nominal voltage)	V	7.4	7.4	12	12
2 空载转速 (No load speed)	rpm	27000	35000	27000	29000
3 空载电流 (No load current)	mA	150	240	130	130
4 额定转速 (Nominal speed)	rpm	23000	30000	23300	25200
5 额定转矩 (Nominal torque)	mNm	2.21	2.99	2.6	2.26
6 额定电流 (Nominal current)	A	0.97	1.69	0.73	0.68
7 堵转转矩 (Stall torque)	mNm	17	23	19.3	17.4
8 堵转电流 (Stall current)	A	6.49	11.38	4.55	4.4
9 相间电阻 (Terminal resistance)	Ω	1.14	0.65	2.64	2.73
10 转矩常数 (Torque constant)	mNm/A	2.56	1.97	3.31	3.87
11 速度常数 (Speed constant)	rpm/V	3648	4729	2250	2416
12 机械时间常数 (Mechanical time constant)	ms	3.77	3.61	5.13	3.96
13 转子惯量 (Rotor inertia)	gcm ²	0.24	0.24	0.24	0.24

可配减速箱 Optional gearbox

可配编码器 Optional encoder

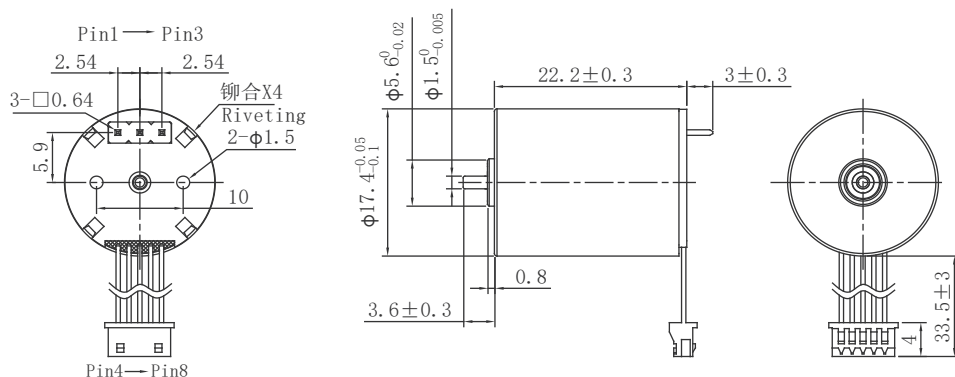
端子数据 Terminal data

端子型号 Terminal model: Pin 1 ~ Pin 3 单排针间距2.0mm 3Pin Pin 4 ~ Pin 8 MOLEX51021-0500端子间距1.25mm 5Pin

Pin 1 电机绕组 Motor winding 2 Pin 2 电机绕组 Motor winding 3 Pin 3 电机绕组 Motor winding 1 Pin 4 霍尔传感器 Hall Vcc 3.3-5V
Pin 5 霍尔传感器 Hall GND Pin 6 霍尔传感器 Hall sensor 3 Pin 7 霍尔传感器 Hall sensor 1 Pin 8 霍尔传感器 Hall sensor 2

其他参数 Other specifications

工作温度范围 (Operating temperature range) -20...+80°C 轴承类型 (Bearing type) 含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs) 1 电机重量 (Weight of motor) 21.5g
相数 (Number of phases) 3



电机参数 Motor specifications		27A	23A	09A	06A
1 额定电压 (Nominal voltage)	V	5	7.4	12	24
2 空载转速 (No load speed)	rpm	25200	30000	24200	22000
3 空载电流 (No load current)	mA	130	230	100	80
4 额定转速 (Nominal speed)	rpm	21900	26220	21100	19250
5 额定转矩 (Nominal torque)	mNm	3.5	4.19	3.86	3.85
6 额定电流 (Nominal current)	A	1.97	1.98	0.9	0.44
7 堵转转矩 (Stall torque)	mNm	26.4	33.5	30.9	30.8
8 堵转电流 (Stall current)	A	14.3	15.23	6.5	2.96
9 相间电阻 (Terminal resistance)	Ω	0.35	0.52	1.84	8.11
10 转矩常数 (Torque constant)	mNm/A	1.86	2.31	4.64	10.2
11 速度常数 (Speed constant)	rpm/V	5040	4051	2016	916
12 机械时间常数 (Mechanical time constant)	ms	3.06	2.94	2.58	2.35
13 转子惯量 (Rotor inertia)	gcm ²	0.33	0.33	0.33	0.33

可配减速箱 Optional gearbox

可配编码器 Optional encoder

端子数据 Terminal data

端子型号 Terminal model: Pin 1 ~ Pin 3 单排针间距2.0mm 3Pin Pin 4 ~ Pin 8 MOLEX51021-0500端子间距1.25mm 5Pin

Pin 1 电机绕组 Motor winding 2 Pin 2 电机绕组 Motor winding 3 Pin 3 电机绕组 Motor winding 1 Pin 4 霍尔传感器 Hall Vcc 3.3-5V

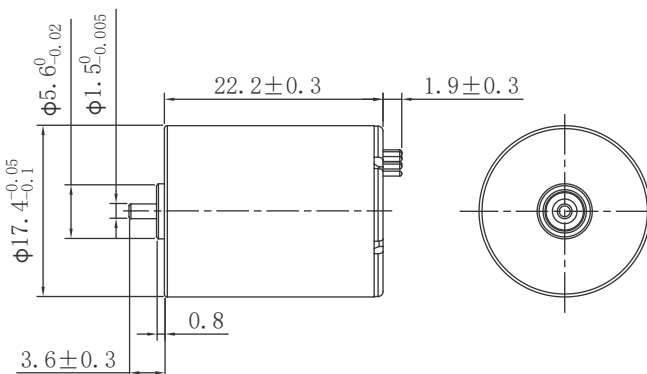
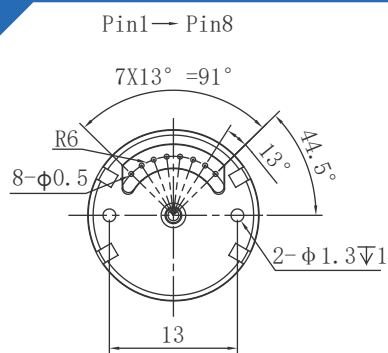
Pin 5 霍尔传感器 Hall GND Pin 6 霍尔传感器 Hall sensor 3 Pin 7 霍尔传感器 Hall sensor 1 Pin 8 霍尔传感器 Hall sensor 2

其他参数 Other specifications

工作温度范围 (Operating temperature range) -20...+80°C 轴承类型 (Bearing type) 含油轴承 (Sleeve bearings)

极对数 (Number of pole pairs) 1 电机重量 (Weight of motor) 27g

相数 (Number of phases) 3



电机参数 Motor specifications		27A	23A	09A	06A
1 额定电压 (Nominal voltage)	V	5	7.4	12	24
2 空载转速 (No load speed)	rpm	25200	30000	24200	22000
3 空载电流 (No load current)	mA	130	230	100	80
4 额定转速 (Nominal speed)	rpm	21900	26220	21100	19250
5 额定转矩 (Nominal torque)	mNm	3.5	4.19	3.86	3.85
6 额定电流 (Nominal current)	A	1.97	1.98	0.9	0.44
7 堵转转矩 (Stall torque)	mNm	26.4	33.5	30.9	30.8
8 堵转电流 (Stall current)	A	14.3	15.23	6.5	2.96
9 相间电阻 (Terminal resistance)	Ω	0.35	0.52	1.84	8.11
10 转矩常数 (Torque constant)	mNm/A	1.86	2.31	4.64	10.2
11 速度常数 (Speed constant)	rpm/V	5040	4051	2016	916
12 机械时间常数 (Mechanical time constant)	ms	3.06	2.94	2.58	2.35
13 转子惯量 (Rotor inertia)	gcm ²	0.33	0.33	0.33	0.33

可配减速箱 Optional gearbox

可配编码器 Optional encoder

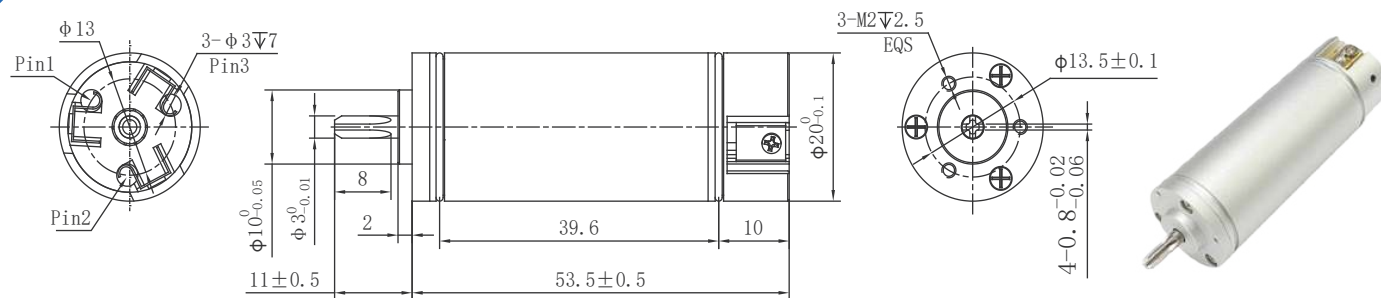
端子数据 Terminal data

端子型号 Terminal model: 8Pin 排针

Pin 1 电机绕组 Motor winding 1	Pin 2 霍尔传感器 Hall GND	Pin 3 霍尔传感器 Hall sensor 1	Pin 4 霍尔传感器 Hall sensor 3
Pin 5 电机绕组 Motor winding 2	Pin 6 霍尔传感器 Hall Vcc 3.3~5V	Pin 7 霍尔传感器 Hall sensor 2	Pin 8 电机绕组 Motor winding 3

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	275g
相数 (Number of phases)	3		



电机参数 Motor specifications		19C	12C	18C	09C
1 额定电压 (Nominal voltage)	V	24	24	24	36
2 空载转速 (No load speed)	rpm	20500	38500	30000	42500
3 空载电流 (No load current)	mA	70	140	100	100
4 额定转速 (Nominal speed)	rpm	17800	33400	26100	36900
5 额定转矩 (Nominal torque)	mNm	9.53	14.4	14.02	15.45
6 额定电流 (Nominal current)	A	0.91	5.54	1.92	2
7 堵转转矩 (Stall torque)	mNm	73.3	110.8	107.9	118.9
8 堵转电流 (Stall current)	A	6.56	18.6	14.12	14.69
9 相间电阻 (Terminal resistance)	Ω	3.66	1.29	1.7	2.45
10 转矩常数 (Torque constant)	mNm/A	10.95	5.83	7.48	792
11 速度常数 (Speed constant)	rpm/V	854	1604	1250	1180
12 机械时间常数 (Mechanical time constant)	ms	2.39	2.98	2.38	3.06
13 转子惯量 (Rotor inertia)	gcm ²	0.86	0.86	0.86	0.86

可配减速箱 Optional gearbox

可配编码器 Optional encoder

端子数据 Terminal data

端子型号 Terminal model:

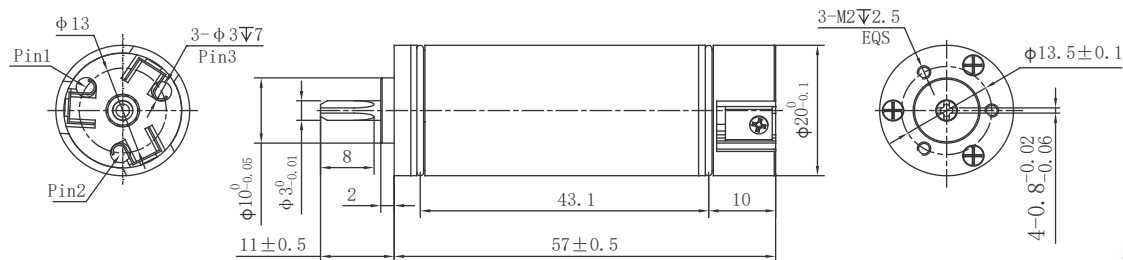
Pin 1 电机绕组 Motor winding 1

Pin 2 电机绕组 Motor winding 2

Pin 3 电机绕组 Motor winding 3

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	66g
相数 (Number of phases)	3		



电机参数 Motor specifications		19A	38C	12C	38B
1 额定电压 (Nominal voltage)	V	12	24	36	36
2 空载转速 (No load speed)	rpm	28000	39000	47000	52000
3 空载电流 (No load current)	mA	200	100	80	80
4 额定转速 (Nominal speed)	rpm	24300	33900	40800	45200
5 额定转矩 (Nominal torque)	mNm	17.7	9.7	14	17.29
6 额定电流 (Nominal current)	A	4.51	1.74	2	2.68
7 堵转转矩 (Stall torque)	mNm	136.4	74.6	108.4	133
8 堵转电流 (Stall current)	A	33.33	12.7	14.81	20.11
9 相间电阻 (Terminal resistance)	Ω	0.36	1.89	2.43	1.79
10 转矩常数 (Torque constant)	mNm/A	4.01	5.76	7.16	6.47
11 速度常数 (Speed constant)	rpm/V	2333	1625	1305	1444
12 机械时间常数 (Mechanical time constant)	ms	2.12	3.16	2.62	3.12
13 转子惯量 (Rotor inertia)	gcm ²	1.04	0.6	0.6	0.8

可配减速箱 Optional gearbox

可配编码器 Optional encoder

端子数据 Terminal data

端子型号 Terminal model:

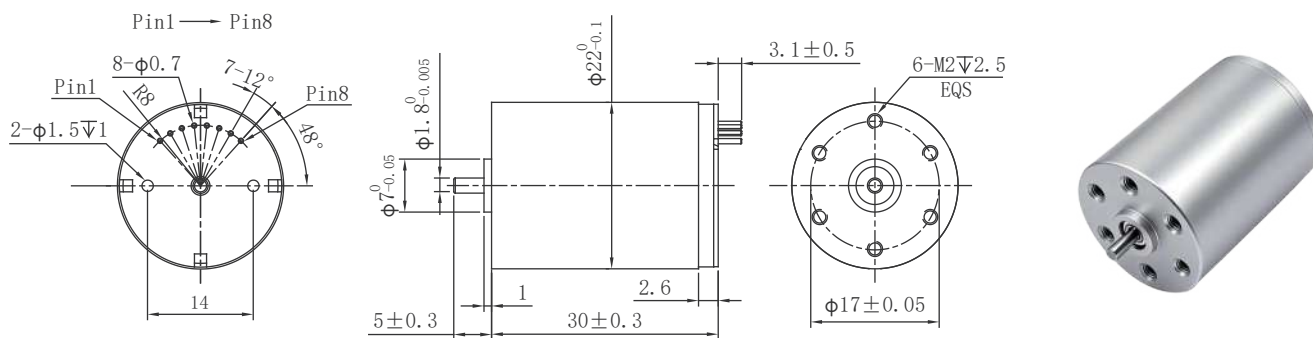
Pin 1 电机绕组 Motor winding 1

Pin 2 电机绕组 Motor winding 2

Pin 3 电机绕组 Motor winding 3

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	69.6g
相数 (Number of phases)	3		



电机参数 Motor specifications		01A	02A	03A	04A
1 额定电压 (Nominal voltage)	V	7.4	12	12	24
2 空载转速 (No load speed)	rpm	16000	12000	16000	16000
3 空载电流 (No load current)	mA	220	130	160	100
4 额定转速 (Nominal speed)	rpm	13900	10400	13900	13900
5 额定转矩 (Nominal torque)	mNm	7.33	5.08	7.35	7.33
6 额定电流 (Nominal current)	A	1.85	0.65	1.17	0.6
7 堵转转矩 (Stall torque)	mNm	56.4	4.1	56.5	56.4
8 堵转电流 (Stall current)	A	12.76	39.1	7.89	3.93
9 相间电阻 (Terminal resistance)	Ω	0.58	2.93	1.52	6.1
10 转矩常数 (Torque constant)	mNm/A	4.32	9.36	7.02	14.04
11 速度常数 (Speed constant)	rpm/V	2162	1000	1333	666
12 机械时间常数 (Mechanical time constant)	ms	4.53	4.90	4.52	4.53
13 转子惯量 (Rotor inertia)	gcm ²	1.6	1.6	1.6	1.6

可配减速箱 Optional gearbox

可配编码器 Optional encoder

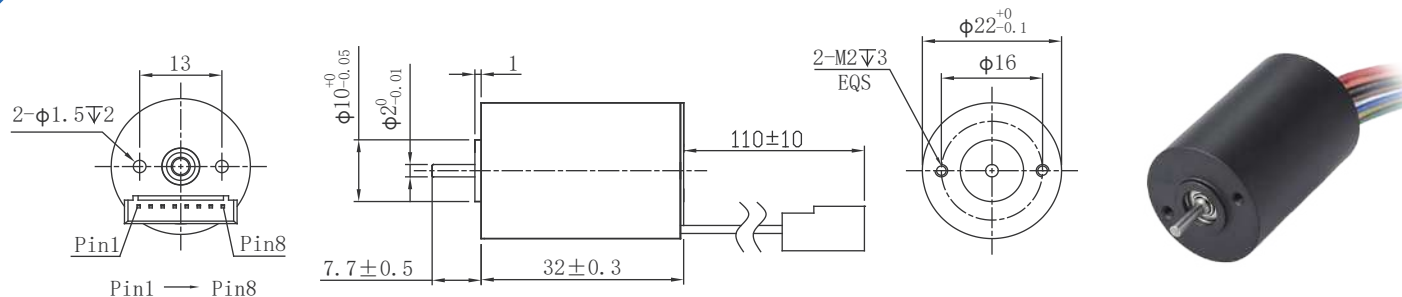
端子数据 Terminal data

端子型号 Terminal model: 8Pin 排针

- Pin 1 霍尔传感器 Hall sensor 1
- Pin 2 霍尔传感器 Hall sensor 2
- Pin 3 霍尔传感器 Hall sensor 3
- Pin 4 霍尔传感器 Hall Vcc 3.3-5V
- Pin 5 霍尔传感器 Hall GND
- Pin 6 电机绕组 Motor winding 3
- Pin 7 电机绕组 Motor winding 2
- Pin 8 电机绕组 Motor winding 1

其他参数 Other specifications

- 工作温度范围 (Operating temperature range) -20...+80°C
- 轴承类型 (Bearing type) 含油轴承 (Sleeve bearings)
- 极对数 (Number of pole pairs) 1
- 电机重量 (Weight of motor) 62.5g
- 相数 (Number of phases) 3



电机参数 Motor specifications

05A

02A

04A

01A

1 额定电压 (Nominal voltage)	V	8.4	12	24	24
2 空载转速 (No load speed)	rpm	20500	20500	14000	17500
3 空载电流 (No load current)	mA	200	100	70	90
4 额定转速 (Nominal speed)	rpm	17800	17800	12100	15200
5 额定转矩 (Nominal torque)	mNm	3.82	3.88	3.04	3.59
6 额定电流 (Nominal current)	A	1.15	0.78	0.27	0.35
7 堵转转矩 (Stall torque)	mNm	29.3	29.8	23.4	27.6
8 堵转电流 (Stall current)	A	7.5	5.33	1.43	2.11
9 相间电阻 (Terminal resistance)	Ω	1.12	2.25	16.8	11.38
10 转矩常数 (Torque constant)	mNm/A	3.83	5.47	16.04	12.83
11 速度常数 (Speed constant)	rpm/V	2440	1708	583	729
12 机械时间常数 (Mechanical time constant)	ms	8.27	8.14	7.09	7.5
13 转子惯量 (Rotor inertia)	gcm ²	1.18	1.18	1.18	1.18

可配减速箱 Optional gearbox

G22MF

见Page 95

可配编码器 Optional encoder

端子数据 Terminal data

端子型号 Terminal model: 2510-8Pin 1007#26 间距2.0

Pin 1 电机绕组 Motor winding 3 绿色 Green

Pin 2 电机绕组 Motor winding 1 蓝色 Blue

Pin 3 电机绕组 Motor winding 2 黄色 Yellow

Pin 4 霍尔传感器 Hall sensor 3 棕色 Brown

Pin 5 霍尔传感器 Hall sensor 2 黑色 Black

Pin 6 霍尔传感器 Hall sensor 1 橙色 Orange

Pin 7 霍尔传感器 Hall Vcc 3.3-5V 红色 Red

Pin 8 霍尔传感器 Hall GND 白色 White

其他参数 Other specifications

工作温度范围 (Operating temperature range)

-20...+80°C

轴承类型 (Bearing type)

滚珠轴承 (Ball bearings)

极对数 (Number of pole pairs)

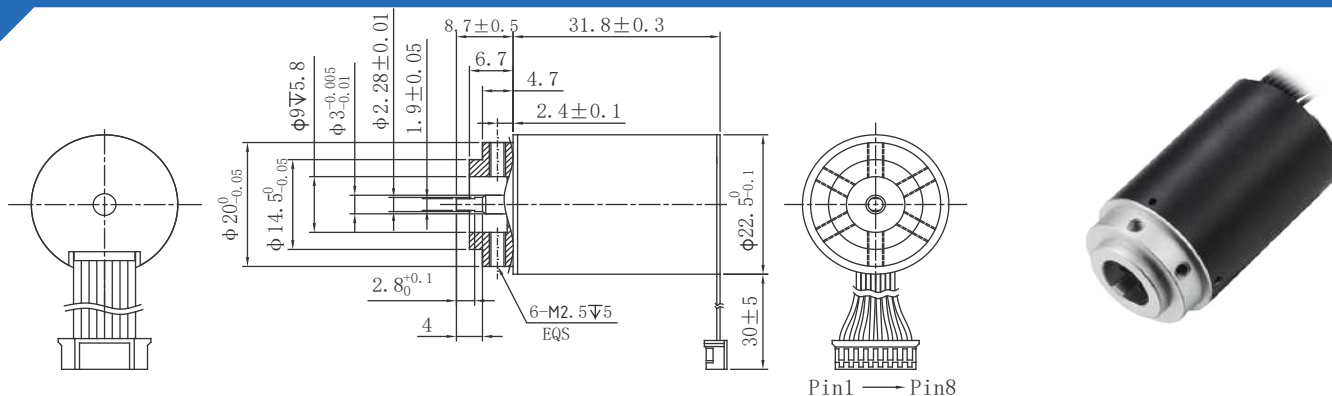
1

电机重量 (Weight of motor)

48.3g

相数 (Number of phases)

3



电机参数 Motor specifications		14B	28B	06B	19B
1 额定电压 (Nominal voltage)	V	12	24	30	32
2 空载转速 (No load speed)	rpm	12800	11000	15000	18000
3 空载电流 (No load current)	mA	90	60	70	90
4 额定转速 (Nominal speed)	rpm	11000	9500	13000	15600
5 额定转矩 (Nominal torque)	mNm	5	3.5	4.63	6.48
6 额定电流 (Nominal current)	A	0.64	0.22	0.3	0.46
7 堵转转矩 (Stall torque)	mNm	38.6	27	35.6	49.8
8 堵转电流 (Stall current)	A	4.32	1.3	1.86	2.94
9 相间电阻 (Terminal resistance)	Ω	2.78	18.5	16.1	10.9
10 转矩常数 (Torque constant)	mNm/A	8.77	20.42	18.72	16.63
11 速度常数 (Speed constant)	rpm/V	1066	458	500	562
12 机械时间常数 (Mechanical time constant)	ms	4.15	5.1	5.28	4.52
13 转子惯量 (Rotor inertia)	gcm ²	1.25	1.25	1.25	1.25

可配减速箱 Optional gearbox

G22MF	见Page 95
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可配编码器 Optional encoder

EM22	增量式(Incremental) 1~1024ppr 1~3通道(channel)	见Page 103
EM22	绝对式(Absolute) 14 bit single turn	见Page 104

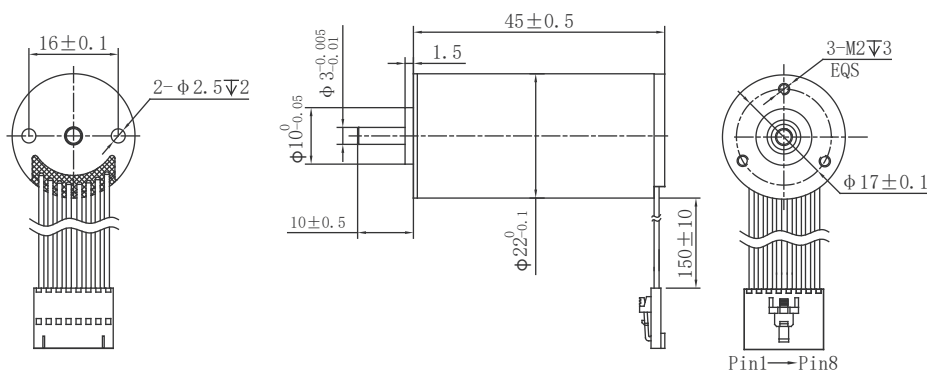
端子数据 Terminal data

端子型号Terminal model: 8Pin-26# 3302 引线黑色+JST端子 PH2.0

Pin 1 电机绕组Motor winding 3	Pin 2 电机绕组Motor winding 1	Pin 3 电机绕组Motor winding 2	Pin 4 霍尔传感器Hall GND
Pin 5 霍尔传感器Hall sensor 1	Pin 6 霍尔传感器Hall sensor 2	Pin 7 霍尔传感器Hall sensor 3	Pin 8 霍尔传感器Hall Vcc 3.3-5V

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	53.7g
相数 (Number of phases)	3		



电机参数 Motor specifications		03A	04A	01A	16A
1 额定电压 (Nominal voltage)	V	24	24	30	30
2 空载转速 (No load speed)	rpm	35000	22600	10500	12500
3 空载电流 (No load current)	mA	220	150	80	110
4 额定转速 (Nominal speed)	rpm	30400	19600	9100	10800
5 额定转矩 (Nominal torque)	mNm	29.19	20.68	11.57	19.95
6 额定电流 (Nominal current)	A	4.67	2.17	0.49	0.97
7 堵转转矩 (Stall torque)	mNm	224.5	159.1	89	153.5
8 堵转电流 (Stall current)	A	34.29	15.69	3.26	6.7
9 相间电阻 (Terminal resistance)	Ω	0.7	1.53	9.2	4.48
10 转矩常数 (Torque constant)	mNm/A	6.41	9.93	26.74	22.46
11 速度常数 (Speed constant)	rpm/V	1458	941	350	416
12 机械时间常数 (Mechanical time constant)	ms	3.33	3.04	2.52	1.74
13 转子惯量 (Rotor inertia)	gcm ²	2.14	2.14	2.14	2.14

可配减速箱 Optional gearbox

G22MF	见Page 95
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可配编码器 Optional encoder

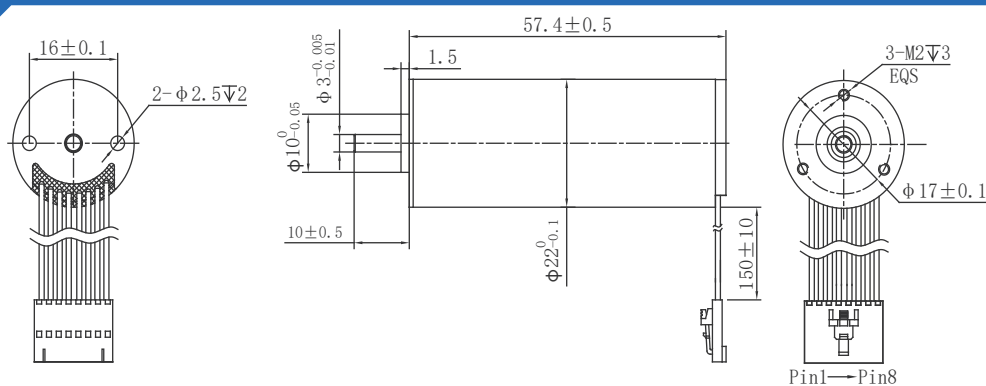
EM22	增量式(Incremental) 1~16384ppr 1~3通道(channel)	见Page 103
EM22	绝对式(Absolute) 21 bit single turn	见Page 104

端子数据 Terminal data

端子型号 Terminal model: Molex 16-02-0103	8Pin Molex 50-57-9048 3232 硅胶线 24AWG 间距2.54
Pin 1 电机绕组 Motor winding 1 棕色 Brown	Pin 2 电机绕组 Motor winding 2 红色 Red
Pin 4 霍尔传感器 Hall Vcc 3.3~5V 黄色 Yellow	Pin 5 霍尔传感器 Hall GND 绿色 Green
Pin 7 霍尔传感器 Hall sensor 2 紫色 Purple	Pin 8 霍尔传感器 Hall sensor 3 灰色 Gray
	Pin 3 电机绕组 Motor winding 3 橙色 Orange
	Pin 6 霍尔传感器 Hall sensor 1 蓝色 Blue

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	100g
相数 (Number of phases)	3		



电机参数 Motor specifications		07B	04B	06B	01B
1 额定电压 (Nominal voltage)	V	12	24	24	30
2 空载转速 (No load speed)	rpm	10000	23000	5500	38500
3 空载电流 (No load current)	mA	120	160	60	450
4 额定转速 (Nominal speed)	rpm	7600	17500	4200	34800
5 额定转矩 (Nominal torque)	mNm	33.32	52.53	15.86	51
6 额定电流 (Nominal current)	A	2.94	5.28	0.42	7.36
7 堵转转矩 (Stall torque)	mNm	141.8	223.5	67.5	544.5
8 堵转电流 (Stall current)	A	12.37	22.43	1.62	73.17
9 相间电阻 (Terminal resistance)	Ω	0.97	1.07	14.82	0.41
10 转矩常数 (Torque constant)	mNm/A	11.23	9.76	40.83	7.29
11 速度常数 (Speed constant)	rpm/V	833	958	229	1283
12 机械时间常数 (Mechanical time constant)	ms	1.78	2.6	2.06	1.79
13 转子惯量 (Rotor inertia)	gcm ²	2.53	2.53	2.53	2.53

可配减速箱 Optional gearbox

G22MF	见Page 95
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可配编码器 Optional encoder

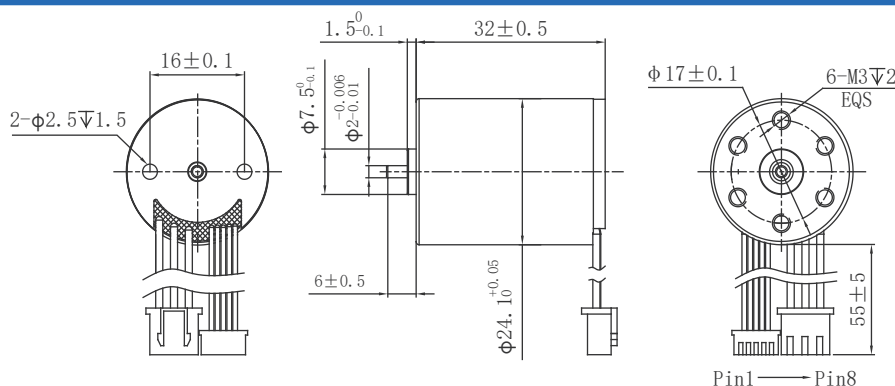
EM22	增量式 (Incremental) 1~16384ppr 1~3通道 (channel)	见Page 103
EM22	绝对式 (Absolute) 21 bit single turn	见Page 104

端子数据 Terminal data

端子型号 Terminal model: Molex 16-02-0103	8Pin Molex 50-57-9048 3232 硅胶线 24AWG 间距2.54	
Pin 1 电机绕组 Motor winding 1 棕色 Brown	Pin 2 电机绕组 Motor winding 2 红色 Red	Pin 3 电机绕组 Motor winding 3 橙色 Orange
Pin 4 霍尔传感器 Hall Vcc 3.3~5V 黄色 Yellow	Pin 5 霍尔传感器 Hall GND 绿色 Green	Pin 6 霍尔传感器 Hall sensor 1 蓝色 Blue
Pin 7 霍尔传感器 Hall sensor 2 紫色 Purple	Pin 8 霍尔传感器 Hall sensor 3 灰色 Gray	

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	127g
相数 (Number of phases)	3		



电机参数 Motor specifications		02B	04B	06B	03B
1 额定电压 (Nominal voltage)	V	7.4	12	12	24
2 空载转速 (No load speed)	rpm	16300	12200	16300	16300
3 空载电流 (No load current)	mA	300	180	200	160
4 额定转速 (Nominal speed)	rpm	14700	11000	14700	14700
5 额定转矩 (Nominal torque)	mNm	7.43	6.82	9.32	10.98
6 额定电流 (Nominal current)	A	1.99	0.91	1.51	0.93
7 堵转转矩 (Stall torque)	mNm	78.3	71.8	98.1	115.6
8 堵转电流 (Stall current)	A	18.05	7.64	13.95	8.22
9 相间电阻 (Terminal resistance)	Ω	0.41	1.57	0.86	2.92
10 转矩常数 (Torque constant)	mNm/A	4.24	9.2	6.89	13.78
11 速度常数 (Speed constant)	rpm/V	2202	1016	1358	679
12 机械时间常数 (Mechanical time constant)	ms	6.54	5.34	5.22	4.43
13 转子惯量 (Rotor inertia)	gcm ²	3.14	3.14	3.14	3.14

可配减速箱 Optional gearbox

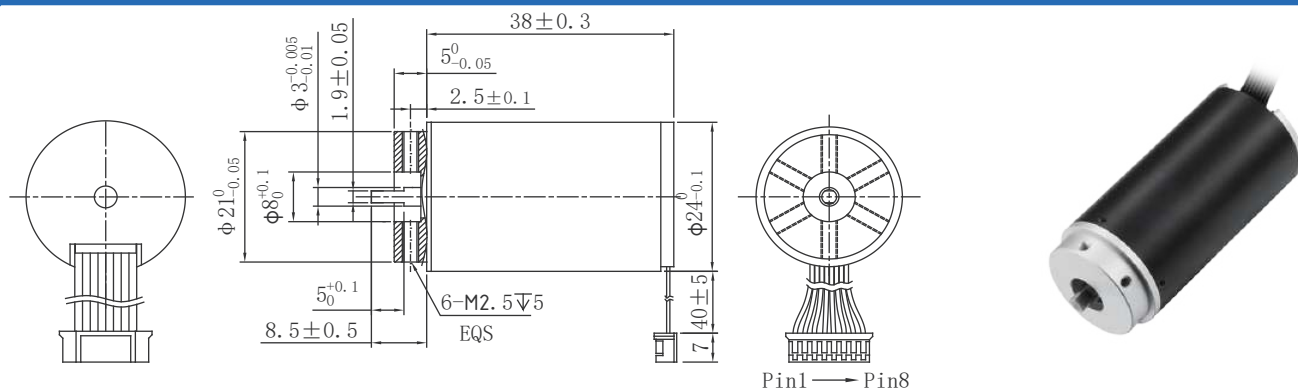
可配编码器 Optional encoder

端子数据 Terminal data

端子型号 Terminal model: Pin 1 ~ Pin 3 XHP-3 XH2.5 AWG24 铁氟龙	Pin 4 ~ Pin 5 MOLEX -51021-005 PH1.25 AWG26PE	
Pin 1 电机绕组 Motor winding 1 红色 Red	Pin 2 电机绕组 Motor winding 2 黄色 Yellow	Pin 3 电机绕组 Motor winding 3 黑色 Black
Pin 4 霍尔传感器 Hall GND 黑色 Black	Pin 5 霍尔传感器 Hall Vcc 3.3-5V 黑色 Black	Pin 6 霍尔传感器 Hall sensor 3 黑色 Black
Pin 7 霍尔传感器 Hall sensor 2 黑色 Black	Pin 8 霍尔传感器 Hall sensor 1 黑色 Black	

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	62.5g
相数 (Number of phases)	3		



电机参数 Motor specifications		05A	01A	03A	04A
1 额定电压 (Nominal voltage)	V	24	30	30	32
2 空载转速 (No load speed)	rpm	9000	19000	20500	17500
3 空载电流 (No load current)	mA	100	90	110	90
4 额定转速 (Nominal speed)	rpm	8100	17100	18500	15800
5 额定转矩 (Nominal torque)	mNm	6.49	14.33	16.39	13.04
6 额定电流 (Nominal current)	A	0.35	1.03	1.27	0.83
7 堵转转矩 (Stall torque)	mNm	68.4	150.8	172.5	137.3
8 堵转电流 (Stall current)	A	2.68	10	12.35	7.86
9 相间电阻 (Terminal resistance)	Ω	8.94	3	2.43	4.07
10 转矩常数 (Torque constant)	mNm/A	24.95	14.77	13.69	1711
11 速度常数 (Speed constant)	rpm/V	375	633	683	546
12 机械时间常数 (Mechanical time constant)	ms	4.54	4.35	4.1	4.4
13 转子惯量 (Rotor inertia)	gcm ²	3.45	3.45	3.45	3.45

可配减速箱 Optional gearbox

G22MF 见Page 95

可配编码器 Optional encoder

EM22 增量式(Incremental) 1-1024ppr 1-3通道(channel) 见Page 103
EM22 绝对式(Absolute) 14 bit single turn 见Page 104

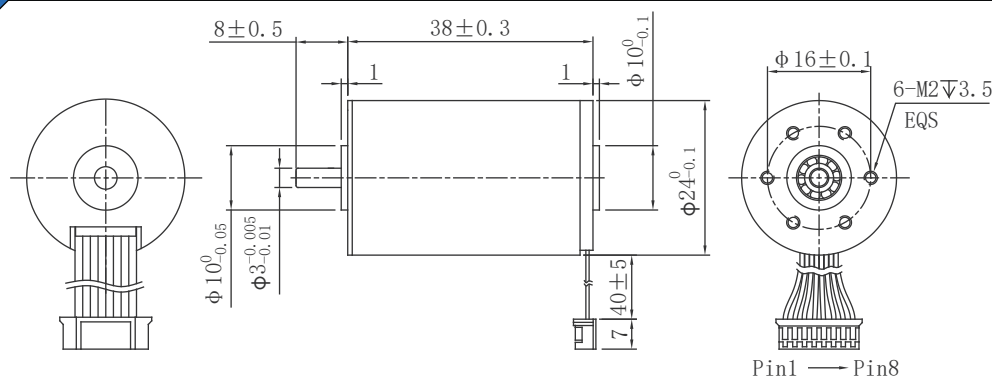
端子数据 Terminal data

端子型号Terminal model: 8Pin-26# 3302 引线黑色+JST端子 PH2.0

Pin 1 电机绕组Motor winding 3	Pin 2 电机绕组Motor winding 1	Pin 3 电机绕组Motor winding 2	Pin 4 霍尔传感器Hall GND
Pin 5 霍尔传感器Hall sensor 1	Pin 6 霍尔传感器Hall sensor 2	Pin 7 霍尔传感器Hall sensor 3	Pin 8 霍尔传感器Hall Vcc 3.3-5V

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	50g
相数 (Number of phases)	3		



电机参数 Motor specifications		05A	01A	03A	04A
1 额定电压 (Nominal voltage)	V	24	30	30	32
2 空载转速 (No load speed)	rpm	9000	19000	20500	17500
3 空载电流 (No load current)	mA	100	90	110	90
4 额定转速 (Nominal speed)	rpm	8100	17100	18500	15800
5 额定转矩 (Nominal torque)	mNm	6.49	14.33	16.39	13.04
6 额定电流 (Nominal current)	A	0.35	1.03	1.27	0.83
7 堵转转矩 (Stall torque)	mNm	68.4	150.8	172.5	137.3
8 堵转电流 (Stall current)	A	2.68	10	12.35	7.86
9 相间电阻 (Terminal resistance)	Ω	8.94	3	2.43	4.07
10 转矩常数 (Torque constant)	mNm/A	24.95	14.77	13.69	1711
11 速度常数 (Speed constant)	rpm/V	375	633	683	546
12 机械时间常数 (Mechanical time constant)	ms	4.54	4.35	4.1	4.4
13 转子惯量 (Rotor inertia)	gcm ²	3.45	3.45	3.45	3.45

可配减速箱 Optional gearbox

G22MF 见Page 95

可配编码器 Optional encoder

EM22 增量式(Incremental) 1-1024ppr 1-3通道(channel) 见Page 103
EM22 绝对式(Absolute) 14 bit single turn 见Page 104

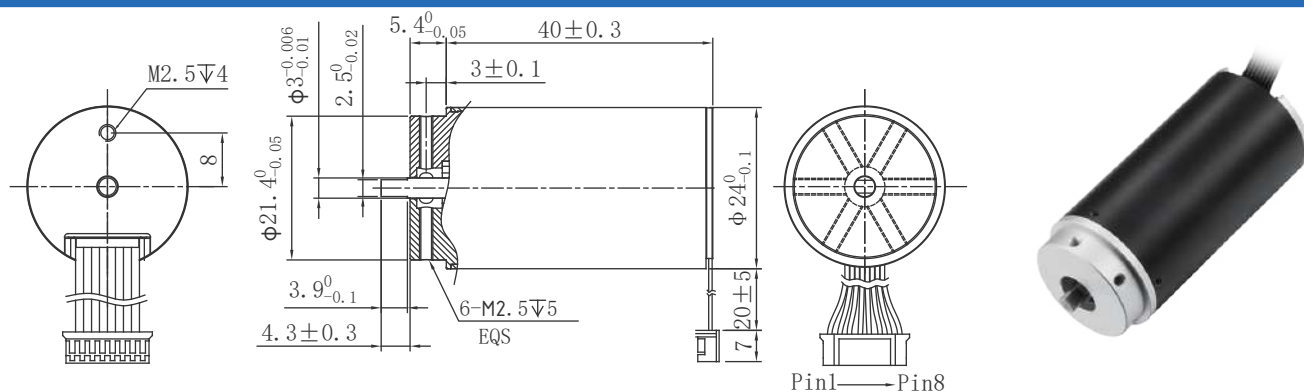
端子数据 Terminal data

端子型号Terminal model: 8Pin-26# 3302 引线黑色+JST端子 PH2.0

Pin 1 电机绕组Motor winding 3	Pin 2 电机绕组Motor winding 1	Pin 3 电机绕组Motor winding 2	Pin 4 霍尔传感器Hall GND
Pin 5 霍尔传感器Hall sensor 1	Pin 6 霍尔传感器Hall sensor 2	Pin 7 霍尔传感器Hall sensor 3	Pin 8 霍尔传感器Hall Vcc 3.3-5V

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	47g
相数 (Number of phases)	3		



电机参数 Motor specifications		01A	02A	03A	10A
1 额定电压 (Nominal voltage)	V	30	30	30	32
2 空载转速 (No load speed)	rpm	17500	22000	20000	17500
3 空载电流 (No load current)	mA	90	120	110	100
4 额定转速 (Nominal speed)	rpm	15800	19900	18100	15800
5 额定转矩 (Nominal torque)	mNm	13.93	15.03	15.01	15.61
6 额定电流 (Nominal current)	A	0.93	1.25	1.15	0.98
7 堵转转矩 (Stall torque)	mNm	146.6	158.2	158	164.4
8 堵转电流 (Stall current)	A	8.96	12.15	11.03	9.41
9 相间电阻 (Terminal resistance)	Ω	3.35	2.47	2.72	3.4
10 转矩常数 (Torque constant)	mNm/A	16.04	12.76	14.03	1711
11 速度常数 (Speed constant)	rpm/V	583	733	666	546
12 机械时间常数 (Mechanical time constant)	ms	3.96	4.61	4.2	3.53
13 转子惯量 (Rotor inertia)	gcm ²	3.32	3.32	3.32	3.32

可配减速箱 Optional gearbox

G22MF 见Page 95

可配编码器 Optional encoder

EM22 增量式(Incremental) 1~16384ppr 1~3通道(channel) 见Page 103
EM22 绝对式(Absolute) 21bit single turn 见Page 104

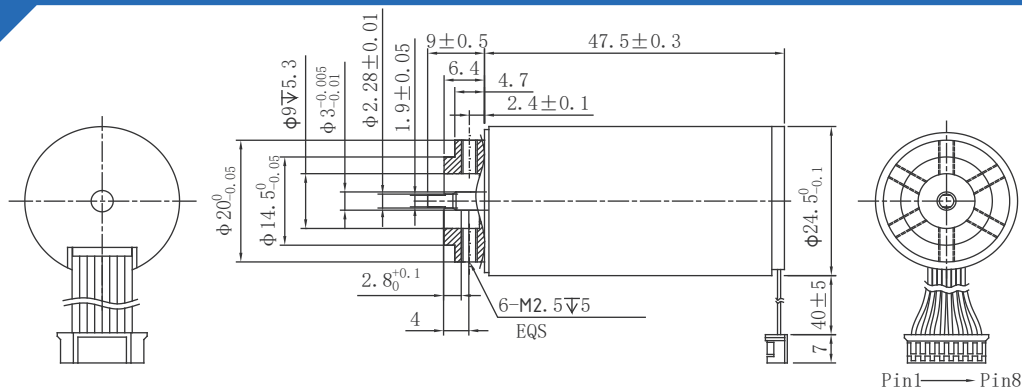
端子数据 Terminal data

端子型号Terminal model: 8Pin-26# 3302 引线黑色+JST端子 PH2.0

Pin 1 电机绕组Motor winding 2	Pin 2 电机绕组Motor winding 1	Pin 3 电机绕组Motor winding 3	Pin 4 霍尔传感器Hall GND
Pin 5 霍尔传感器Hall sensor 1	Pin 6 霍尔传感器Hall sensor 2	Pin 7 霍尔传感器Hall sensor 3	Pin 8 霍尔传感器Hall Vcc 3.3-5V

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	75.6g
相数 (Number of phases)	3		



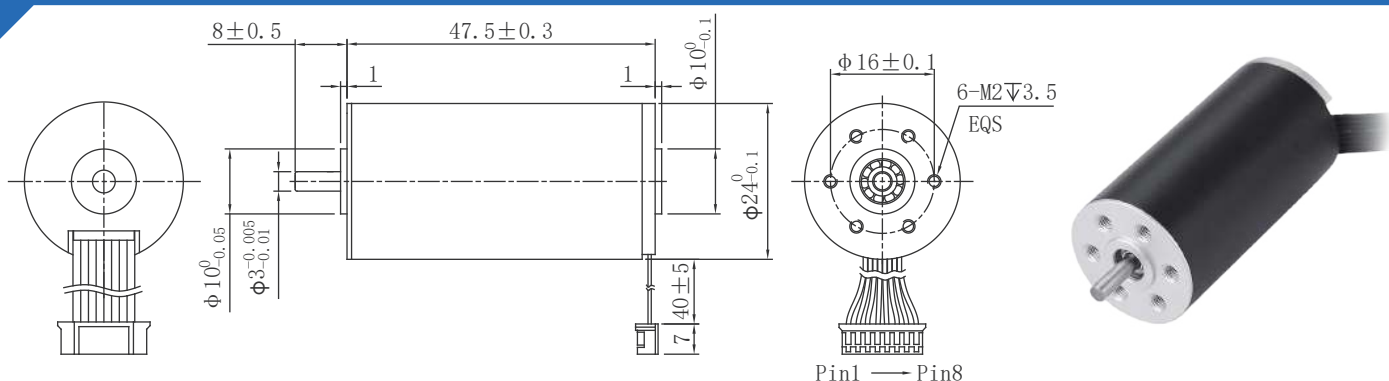
电机参数 Motor specifications		23A	20A	26A	27A
1 额定电压 (Nominal voltage)	V	24	30	30	30
2 空载转速 (No load speed)	rpm	10500	16500	20000	14500
3 空载电流 (No load current)	mA	80	150	210	130
4 额定转速 (Nominal speed)	rpm	9500	14900	18100	13100
5 额定转矩 (Nominal torque)	mNm	14.99	23.68	28.35	20.04
6 额定电流 (Nominal current)	A	0.76	1.5	2.17	1.13
7 堵转转矩 (Stall torque)	mNm	157.8	249.2	298.4	210.9
8 堵转电流 (Stall current)	A	7.23	14.35	20.83	10.68
9 相间电阻 (Terminal resistance)	Ω	3.32	2.09	1.44	2.81
10 转矩常数 (Torque constant)	mNm/A	21.39	17.01	14.03	19.36
11 速度常数 (Speed constant)	rpm/V	437	550	666	483
12 机械时间常数 (Mechanical time constant)	ms	3.28	3.26	3.3	3.39
13 转子惯量 (Rotor inertia)	gcm ²	4.93	4.93	4.93	4.93

可配减速箱 Optional gearbox	
G22MF	见Page 95

可配编码器 Optional encoder		
EM22	增量式(Incremental) 1~1024ppr 1~3通道(channel)	见Page 103
EM22	绝对式(Absolute) 14 bit single turn	见Page 104

端子数据 Terminal data			
端子型号Terminal model: 8P-26# 3302 引线黑色+JST端子 PH2.0			
Pin 1 电机绕组Motor winding 3	Pin 2 电机绕组Motor winding 1	Pin 3 电机绕组Motor winding 2	Pin 4 霍尔传感器Hall GND
Pin 5 霍尔传感器Hall sensor 1	Pin 6 霍尔传感器Hall sensor 2	Pin 7 霍尔传感器Hall sensor 3	Pin 8 霍尔传感器Hall Vcc 3.3-5V

其他参数 Other specifications			
工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	97.7g
相数 (Number of phases)	3		



电机参数 Motor specifications		05A	13A	02A	19A
1 额定电压 (Nominal voltage)	V	24	24	30	30
2 空载转速 (No load speed)	rpm	13000	24500	9000	12000
3 空载电流 (No load current)	mA	120	260	80	130
4 额定转速 (Nominal speed)	rpm	11700	22100	8100	10800
5 额定转矩 (Nominal torque)	mNm	18.03	22.45	14.18	17.91
6 额定电流 (Nominal current)	A	1.13	2.64	0.52	0.87
7 堵转转矩 (Stall torque)	mNm	189.7	236.3	149.2	188.5
8 堵转电流 (Stall current)	A	10.76	25.26	4.69	7.89
9 相间电阻 (Terminal resistance)	Ω	2.23	0.95	6.4	3.8
10 转矩常数 (Torque constant)	mNm/A	17.27	9.16	31.19	23.39
11 速度常数 (Speed constant)	rpm/V	541	1020	300	400
12 机械时间常数 (Mechanical time constant)	ms	3.37	5.11	2.97	3.14
13 转子惯量 (Rotor inertia)	gcm ²	4.93	4.93	4.93	4.93

可配减速箱 Optional gearbox

G22MF 见Page 95

可配编码器 Optional encoder

EM22 增量式(Incremental) 1~1024ppr 1~3通道(channel) 见Page 103
EM22 绝对式(Absolute) 14 bit single turn 见Page 104

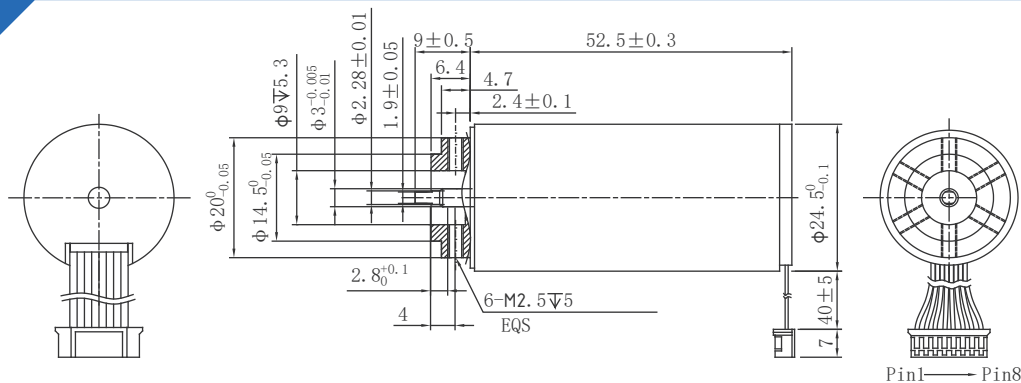
端子数据 Terminal data

端子型号Terminal model: 8Pin-26# 3302 引线黑色+JST端子 PH2.0

Pin 1 电机绕组Motor winding 3	Pin 2 电机绕组Motor winding 1	Pin 3 电机绕组Motor winding 2	Pin 4 霍尔传感器Hall GND
Pin 5 霍尔传感器Hall sensor 1	Pin 6 霍尔传感器Hall sensor 2	Pin 7 霍尔传感器Hall sensor 3	Pin 8 霍尔传感器Hall Vcc 3.3-5V

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	97g
相数 (Number of phases)	3		



电机参数 Motor specifications		02A	03A	04A	01A
1 额定电压 (Nominal voltage)	V	24	30	30	30
2 空载转速 (No load speed)	rpm	12500	16500	20000	21500
3 空载电流 (No load current)	mA	150	160	200	230
4 额定转速 (Nominal speed)	rpm	11300	14900	18100	19400
5 额定转矩 (Nominal torque)	mNm	27.32	36.39	43.9	45.76
6 额定电流 (Nominal current)	A	1.63	2.24	3.25	3.64
7 堵转转矩 (Stall torque)	mNm	287.6	383	462.1	481.6
8 堵转电流 (Stall current)	A	15.69	22.06	32.26	36.14
9 相间电阻 (Terminal resistance)	Ω	1.53	1.36	0.93	0.83
10 转矩常数 (Torque constant)	mNm/A	21.39	17.01	14.03	13.06
11 速度常数 (Speed constant)	rpm/V	437	550	666	716
12 机械时间常数 (Mechanical time constant)	ms	2.5	2.48	2.49	2.57
13 转子惯量 (Rotor inertia)	gcm ²	5.75	5.75	5.75	5.75

可配减速箱 Optional gearbox

G22MF 见Page 95

可配编码器 Optional encoder

EM22 增量式(Incremental) 1~16384ppr 1~3通道(channel) 见Page 103
EM22 绝对式(Absolute) 21bit single turn 见Page 104

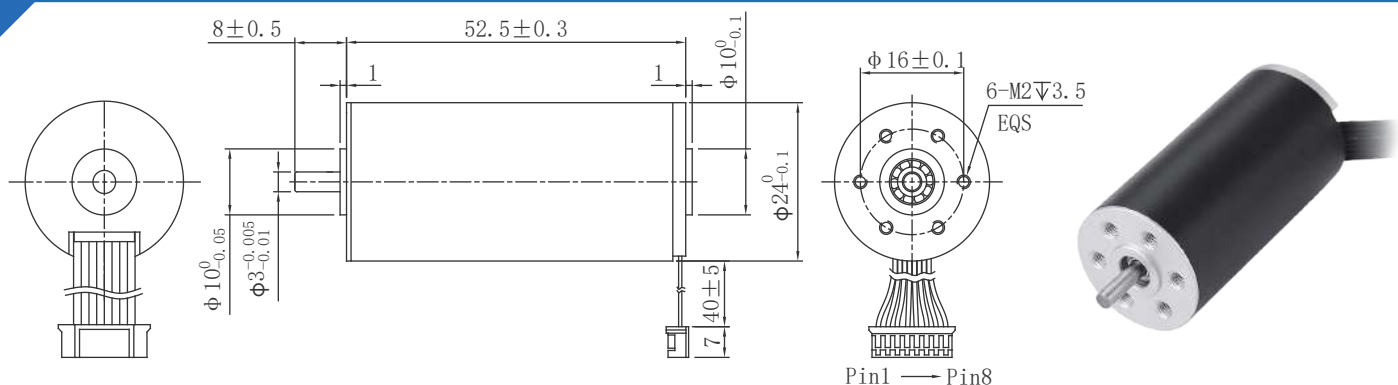
端子数据 Terminal data

端子型号Terminal model: 8Pin-26# 3302 引线黑色+JST端子 PH2.0

Pin 1 电机绕组Motor winding 3	Pin 2 电机绕组Motor winding 1	Pin 3 电机绕组Motor winding 2	Pin 4 霍尔传感器Hall GND
Pin 5 霍尔传感器Hall sensor 1	Pin 6 霍尔传感器Hall sensor 2	Pin 7 霍尔传感器Hall sensor 3	Pin 8 霍尔传感器Hall Vcc 3.3-5V

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	145g
相数 (Number of phases)	3		



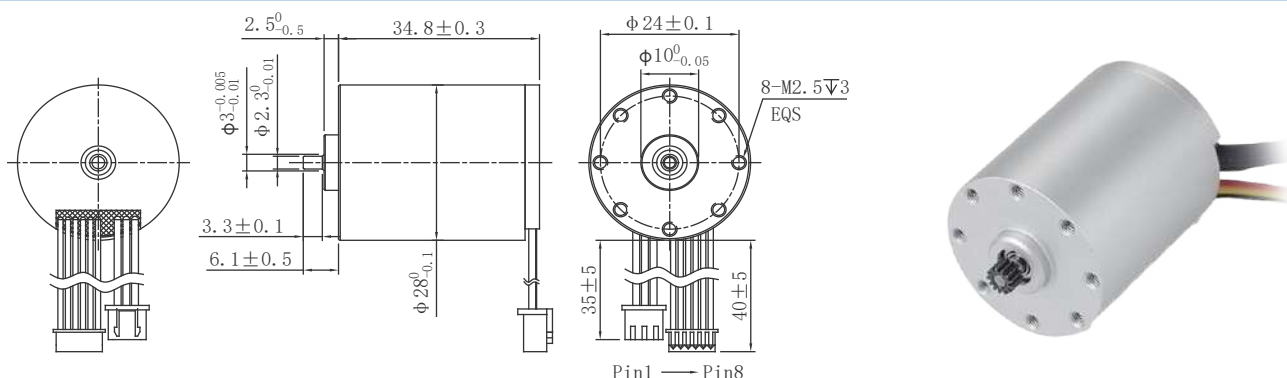
电机参数 Motor specifications		02A	03A	04A	01A
1 额定电压 (Nominal voltage)	V	24	30	30	30
2 空载转速 (No load speed)	rpm	12500	16500	20000	21500
3 空载电流 (No load current)	mA	150	160	200	230
4 额定转速 (Nominal speed)	rpm	11300	14900	18100	19400
5 额定转矩 (Nominal torque)	mNm	27.32	36.39	43.9	45.76
6 额定电流 (Nominal current)	A	1.63	2.24	3.25	3.64
7 堵转转矩 (Stall torque)	mNm	287.6	383	462.1	481.6
8 堵转电流 (Stall current)	A	15.69	22.06	32.26	36.14
9 相间电阻 (Terminal resistance)	Ω	1.53	1.36	0.93	0.83
10 转矩常数 (Torque constant)	mNm/A	21.39	17.01	14.03	13.06
11 速度常数 (Speed constant)	rpm/V	437	550	666	716
12 机械时间常数 (Mechanical time constant)	ms	2.5	2.48	2.49	2.57
13 转子惯量 (Rotor inertia)	gcm ²	5.75	5.75	5.75	5.75

可配减速箱 Optional gearbox	
G22MF	见Page 95

可配编码器 Optional encoder		
EM22	增量式(Incremental) 1~16384ppr 1~3通道(channel)	见Page 103
EM22	绝对式(Absolute) 21bit single turn	见Page 104

端子数据 Terminal data			
端子型号Terminal model: 8Pin-26# 3302 引线黑色+JST端子 PH2.0			
Pin 1 电机绕组Motor winding 3	Pin 2 电机绕组Motor winding 1	Pin 3 电机绕组Motor winding 2	Pin 4 霍尔传感器Hall GND
Pin 5 霍尔传感器Hall sensor 1	Pin 6 霍尔传感器Hall sensor 2	Pin 7 霍尔传感器Hall sensor 3	Pin 8 霍尔传感器Hall Vcc 3.3-5V

其他参数 Other specifications			
工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	143g
相数 (Number of phases)	3		



电机参数 Motor specifications		24A	03A	14A	01A
1 额定电压 (Nominal voltage)	V	8.4	12	12	24
2 空载转速 (No load speed)	rpm	15000	9500	12500	13500
3 空载电流 (No load current)	mA	210	70	110	60
4 额定转速 (Nominal speed)	rpm	13500	8500	11000	12200
5 额定转矩 (Nominal torque)	mNm	14.23	10.04	11.74	13.82
6 额定电流 (Nominal current)	A	2.85	0.9	1.38	0.87
7 堵转转矩 (Stall torque)	mNm	149.7	105.7	123.6	145.5
8 堵转电流 (Stall current)	A	28	8.76	13.48	8.57
9 相间电阻 (Terminal resistance)	Ω	0.3	1.37	0.89	2.8
10 转矩常数 (Torque constant)	mNm/A	5.24	11.82	8.98	16.63
11 速度常数 (Speed constant)	rpm/V	1785	791	1041	562
12 机械时间常数 (Mechanical time constant)	ms	4.69	4.21	4.73	4.34
13 转子惯量 (Rotor inertia)	gcm ²	4.68	4.68	4.68	4.68

可配减速箱 Optional gearbox

可配编码器 Optional encoder

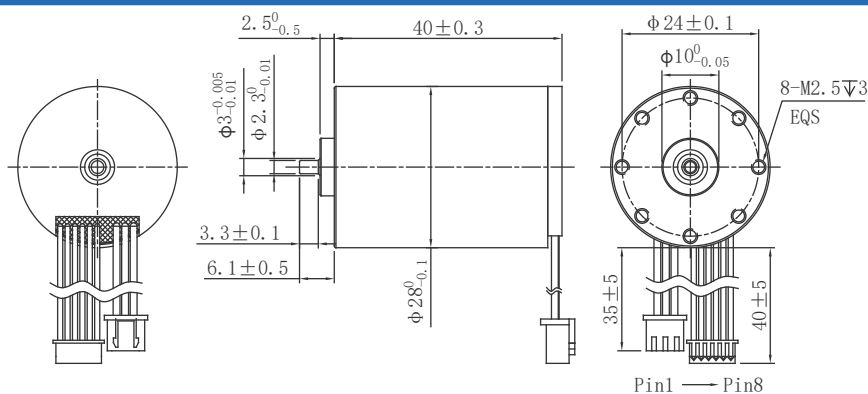
端子数据 Terminal data

端子型号Terminal model: Pin 1 ~ Pin 3 XHP-3 XH2.5 AWG24铁氟龙线 Pin 4 ~ Pin 5 MOLEX SD-51021-006 PH1.25 AWG26 PE排线

Pin 1 电机绕组Motor winding 3 黑色Black	Pin 2 电机绕组Motor winding 1 黄色Yellow	Pin 3 电机绕组Motor winding 2 红色Red
Pin 4 温控传感器NTC 黑色Black	Pin 5 霍尔传感器Hall GND 黑色Black	Pin 6 霍尔传感器Hall Vcc 3.3-5V 黑色Black
Pin 7 霍尔传感器Hall sensor 1 黑色Black	Pin 8 霍尔传感器Hall sensor 2 黑色Black	Pin 9 霍尔传感器Hall sensor 3 黑色Black

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	94.3g
相数 (Number of phases)	3		



电机参数 Motor specifications		03A	01A	04A	02A
1 额定电压 (Nominal voltage)	V	12	12	24	24
2 空载转速 (No load speed)	rpm	9000	12500	9000	12500
3 空载电流 (No load current)	mA	100	150	70	90
4 额定转速 (Nominal speed)	rpm	8100	11300	8100	11300
5 额定转矩 (Nominal torque)	mNm	12.73	18.34	12.65	20
6 额定电流 (Nominal current)	A	1.09	2.14	0.56	1.17
7 堵转转矩 (Stall torque)	mNm	134	193	133.2	145.5
8 堵转电流 (Stall current)	A	10.53	21.05	5.23	8.57
9 相间电阻 (Terminal resistance)	Ω	1.14	0.57	4.59	2.8
10 转矩常数 (Torque constant)	mNm/A	12.47	8.98	24.95	1797
11 速度常数 (Speed constant)	rpm/V	750	1041	375	520
12 机械时间常数 (Mechanical time constant)	ms	3.88	3.74	3.9	3.43
13 转子惯量 (Rotor inertia)	gcm ²	5.78	5.78	5.78	5.78

可配减速箱 Optional gearbox

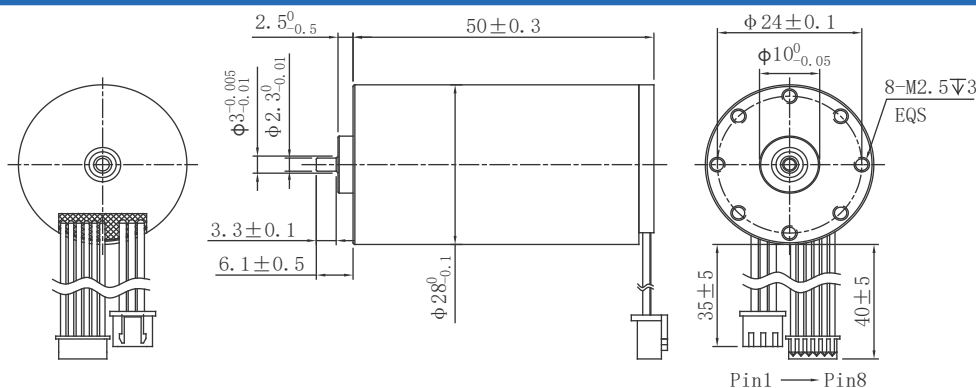
可配编码器 Optional encoder

端子数据 Terminal data

- 端子型号 Terminal model: Pin 1 ~ Pin 3 XHP-3 XH2.5 AWG24 铁氟龙线 Pin 4 ~ Pin 5 MOLEX SD-51021-006 PH1.25 AWG26 PE排线
- Pin 1 电机绕组 Motor winding 3 黑色 Black
 - Pin 2 电机绕组 Motor winding 1 黄色 Yellow
 - Pin 3 电机绕组 Motor winding 2 红色 Red
 - Pin 4 温控传感器 NTC 黑色 Black
 - Pin 5 霍尔传感器 Hall GND 黑色 Black
 - Pin 6 霍尔传感器 Hall Vcc 3.3-5V 黑色 Black
 - Pin 7 霍尔传感器 Hall sensor 1 黑色 Black
 - Pin 8 霍尔传感器 Hall sensor 2 黑色 Black
 - Pin 9 霍尔传感器 Hall sensor 3 黑色 Black

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	105g
相数 (Number of phases)	3		



电机参数 Motor specifications		04A	06A	05A	03A
1 额定电压 (Nominal voltage)	V	24	28	30	30
2 空载转速 (No load speed)	rpm	10000	10000	8000	18000
3 空载电流 (No load current)	mA	100	80	70	130
4 额定转速 (Nominal speed)	rpm	9000	9000	7200	16200
5 额定转矩 (Nominal torque)	mNm	29.36	29.39	25.64	29.46
6 额定电流 (Nominal current)	A	1.37	1.17	0.78	1.97
7 堵转转矩 (Stall torque)	mNm	309	309.4	269.9	310.1
8 堵转电流 (Stall current)	A	13.48	11.57	7.54	19.48
9 相间电阻 (Terminal resistance)	Ω	1.78	2.42	3.98	1.54
10 转矩常数 (Torque constant)	mNm/A	22.46	26.2	35.09	15.59
11 速度常数 (Speed constant)	rpm/V	416	357	266	600
12 机械时间常数 (Mechanical time constant)	ms	2.53	2.52	2.32	4.53
13 转子惯量 (Rotor inertia)	gcm ²	7.81	7.81	7.81	7.81

可配减速箱 Optional gearbox

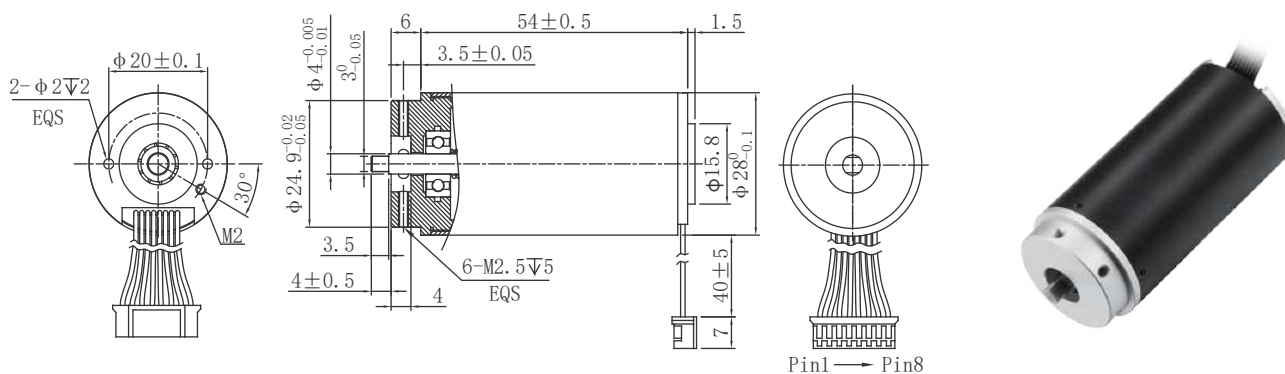
可配编码器 Optional encoder

端子数据 Terminal data

端子型号Terminal model: Pin 1 ~ Pin 3 XHP-3 XH2.5 AWG24铁氟龙线 Pin 4 ~ Pin 5 MOLEX SD-51021-006 PH1.25 AWG26 PE排线
 Pin 1 电机绕组Motor winding 3 黑色Black Pin 2 电机绕组Motor winding 1 黄色Yellow Pin 3 电机绕组Motor winding 2 红色Red
 Pin 4 温控传感器NTC 黑色Black Pin 5 霍尔传感器Hall GND 黑色Black Pin 6 霍尔传感器Hall Vcc 3.3-5V 黑色Black
 Pin 7 霍尔传感器Hall sensor 1 黑色Black Pin 8 霍尔传感器Hall sensor 2 黑色Black Pin 9 霍尔传感器Hall sensor 3 黑色Black

其他参数 Other specifications

工作温度范围 (Operating temperature range) -20...+80°C 轴承类型 (Bearing type) 滚珠轴承 (Ball bearings)
 极对数 (Number of pole pairs) 1 电机重量 (Weight of motor) 155g
 相数 (Number of phases) 3



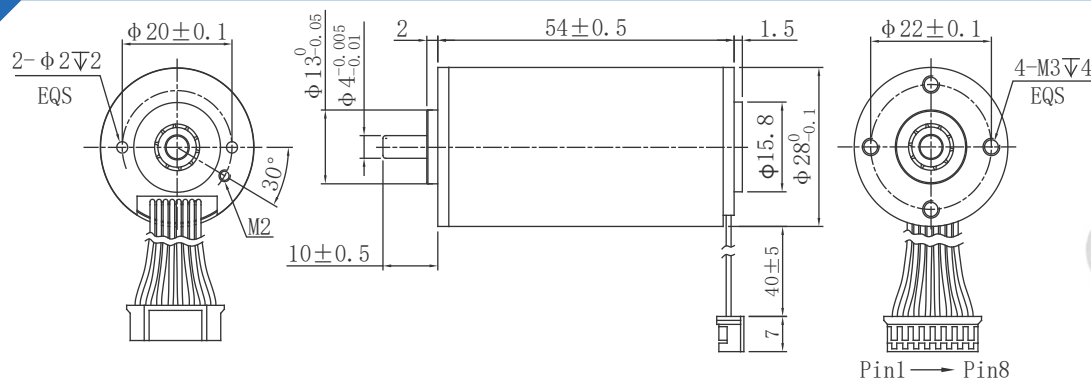
电机参数 Motor specifications		14XA	17A	18A	36A
1 额定电压 (Nominal voltage)	V	30	30	30	32
2 空载转速 (No load speed)	rpm	16500	9200	21500	16500
3 空载电流 (No load current)	mA	120	120	220	160
4 额定转速 (Nominal speed)	rpm	14900	8300	19400	14900
5 额定转矩 (Nominal torque)	mNm	49	21.75	48.07	41.71
6 额定电流 (Nominal current)	A	2.93	0.78	3.81	2.39
7 堵转转矩 (Stall torque)	mNm	515.8	229	506	439
8 堵转电流 (Stall current)	A	29.7	7.35	37.97	23.7
9 相间电阻 (Terminal resistance)	Ω	1.01	4.08	0.79	1.35
10 转矩常数 (Torque constant)	mNm/A	17.01	30.52	13.06	18.15
11 速度常数 (Speed constant)	rpm/V	550	306	716	515
12 机械时间常数 (Mechanical time constant)	ms	2.42	3.05	3.22	2.85
13 转子惯量 (Rotor inertia)	gcm ²	7.58	7.58	7.58	7.58

可配减速箱 Optional gearbox	
G28MT	见Page 96

可配编码器 Optional encoder		
EM22	增量式 (Incremental) 1~16384ppr 1~3通道 (channel)	见Page 103
EM22	绝对式 (Absolute) 21 bit single turn	见Page 104

端子数据 Terminal data		
端子型号 Terminal model: 8Pin-26# 3302 引线黑色+JST端子 PH2.0		
Pin 1 电机绕组 Motor winding 3 黑色 Black	Pin 2 电机绕组 Motor winding 1 黑色 Black	Pin 3 电机绕组 Motor winding 2 黑色 Black
Pin 4 霍尔传感器 Hall GND 黑色 Black	Pin 5 霍尔传感器 Hall sensor 1 黑色 Black	Pin 6 霍尔传感器 Hall sensor 2 黑色 Black
Pin 7 霍尔传感器 Hall sensor 3 黑色 Black	Pin 8 霍尔传感器 Hall Vcc 3.3-5V 黑色 Black	

其他参数 Other specifications			
工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	154.7g
相数 (Number of phases)	3		



电机参数 Motor specifications		14XA	17A	18A	36A
1 额定电压 (Nominal voltage)	V	30	30	30	32
2 空载转速 (No load speed)	rpm	16500	9200	21500	16500
3 空载电流 (No load current)	mA	120	120	220	160
4 额定转速 (Nominal speed)	rpm	14900	8300	19400	14900
5 额定转矩 (Nominal torque)	mNm	49	21.75	48.07	41.71
6 额定电流 (Nominal current)	A	2.93	0.78	3.81	2.39
7 堵转转矩 (Stall torque)	mNm	515.8	229	506	439
8 堵转电流 (Stall current)	A	29.7	7.35	37.97	23.7
9 相间电阻 (Terminal resistance)	Ω	1.01	4.08	0.79	1.35
10 转矩常数 (Torque constant)	mNm/A	17.01	30.52	13.06	18.15
11 速度常数 (Speed constant)	rpm/V	550	306	716	515
12 机械时间常数 (Mechanical time constant)	ms	2.42	3.05	3.22	2.85
13 转子惯量 (Rotor inertia)	gcm ²	7.58	7.58	7.58	7.58

可配减速箱 Optional gearbox

G28MT	见Page 96
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可配编码器 Optional encoder

EM22	增量式(Incremental) 1~16384ppr 1~3通道(channel)	见Page 103
EM22	绝对式(Absolute) 21 bit single turn	见Page 104

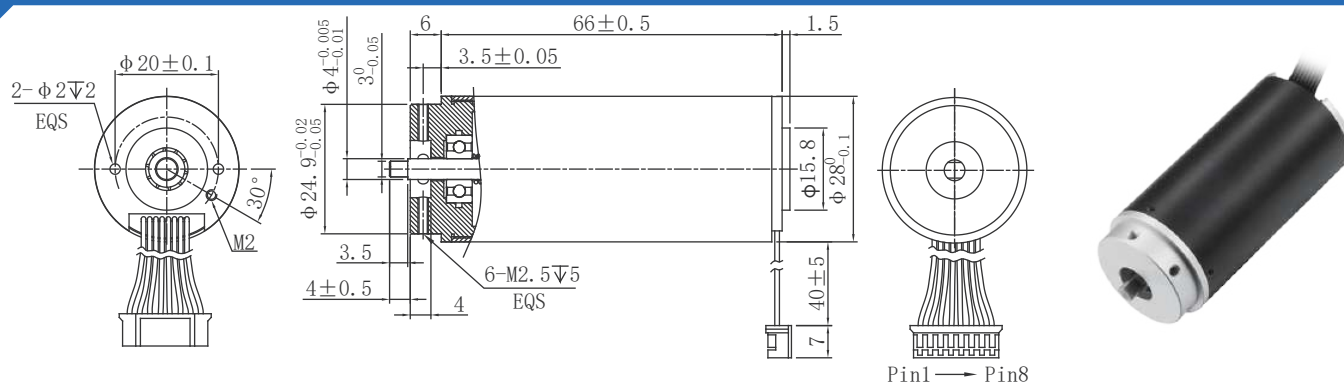
端子数据 Terminal data

端子型号Terminal model: 8Pin-26# 3302 引线黑色+JST端子 PH2.0

Pin 1 电机绕组Motor winding 3 黑色Black	Pin 2 电机绕组Motor winding 1 黑色Black	Pin 3 电机绕组Motor winding 2 黑色Black
Pin 4 霍尔传感器Hall GND 黑色Black	Pin 5 霍尔传感器Hall sensor 1 黑色Black	Pin 6 霍尔传感器Hall sensor 2 黑色Black
Pin 7 霍尔传感器Hall sensor 3 黑色Black	Pin 8 霍尔传感器Hall Vcc 3.3-5V黑色Black	

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	153g
相数 (Number of phases)	3		



电机参数 Motor specifications		01XA	02XA	02A	05A
1 额定电压 (Nominal voltage)	V	30	30	37	48
2 空载转速 (No load speed)	rpm	16500	15500	20000	21000
3 空载电流 (No load current)	mA	180	160	200	200
4 额定转速 (Nominal speed)	rpm	14900	14000	18000	19000
5 额定转矩 (Nominal torque)	mNm	69.7	86.36	83.92	85.81
6 额定电流 (Nominal current)	A	4.18	4.82	4.93	4.11
7 堵转转矩 (Stall torque)	mNm	733.7	909	883.4	903.3
8 堵转电流 (Stall current)	A	42.25	49.18	50	41.38
9 相间电阻 (Terminal resistance)	Ω	0.71	0.61	0.74	1.16
10 转矩常数 (Torque constant)	mNm/A	17.01	18.11	17.31	21.39
11 速度常数 (Speed constant)	rpm/V	550	516	540	437
12 机械时间常数 (Mechanical time constant)	ms	2.29	1.74	2.31	2.37
13 转子惯量 (Rotor inertia)	gcm ²	10.2	7.58	7.58	7.58

可配减速箱 Optional gearbox

G28MT	见Page 96
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可配编码器 Optional encoder

EM22	增量式(Incremental) 1-16384ppr 1-3通道(channel)	见Page 103
EM22	绝对式(Absolute) 21 bit single turn	见Page 104

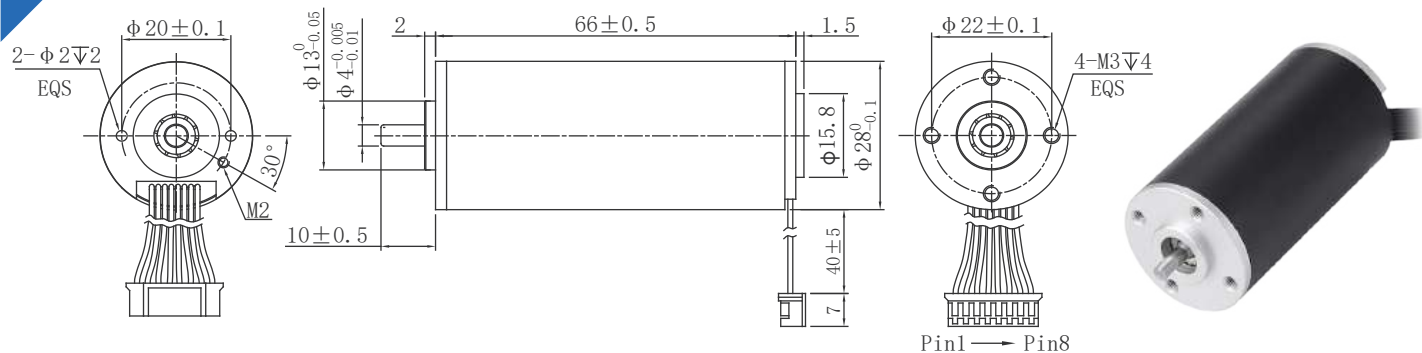
端子数据 Terminal data

端子型号Terminal model: 8Pin-26# 3302 引线黑色+JST端子 PH2.0

Pin 1 电机绕组Motor winding 3 黑色Black	Pin 2 电机绕组Motor winding 1 黑色Black	Pin 3 电机绕组Motor winding 2 黑色Black
Pin 4 霍尔传感器Hall GND 黑色Black	Pin 5 霍尔传感器Hall sensor 1 黑色Black	Pin 6 霍尔传感器Hall sensor 2 黑色Black
Pin 7 霍尔传感器Hall sensor 3 黑色Black	Pin 8 霍尔传感器Hall Vcc 3.3-5V黑色Black	

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	195.7g
相数 (Number of phases)	3		



电机参数 Motor specifications		01XA	02XA	02A	05A
1 额定电压 (Nominal voltage)	V	30	30	37	48
2 空载转速 (No load speed)	rpm	16500	15500	20000	21000
3 空载电流 (No load current)	mA	180	160	200	200
4 额定转速 (Nominal speed)	rpm	14900	14000	18000	19000
5 额定转矩 (Nominal torque)	mNm	69.7	86.36	83.92	85.81
6 额定电流 (Nominal current)	A	4.18	4.82	4.93	4.11
7 堵转转矩 (Stall torque)	mNm	733.7	909	883.4	903.3
8 堵转电流 (Stall current)	A	42.25	49.18	50	41.38
9 相间电阻 (Terminal resistance)	Ω	0.71	0.61	0.74	1.16
10 转矩常数 (Torque constant)	mNm/A	17.01	18.11	17.31	21.39
11 速度常数 (Speed constant)	rpm/V	550	516	540	437
12 机械时间常数 (Mechanical time constant)	ms	2.29	1.74	2.31	2.37
13 转子惯量 (Rotor inertia)	gcm ²	10.2	7.58	7.58	7.58

可配减速箱 Optional gearbox

G28MT	见Page 96
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可配编码器 Optional encoder

EM22	增量式(Incremental) 1-16384ppr 1-3通道(channel)	见Page 103
EM22	绝对式(Absolute) 21 bit single turn	见Page 104

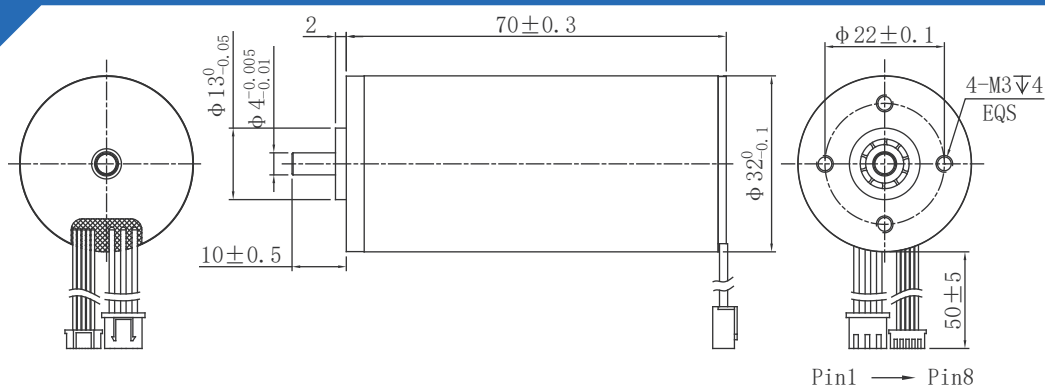
端子数据 Terminal data

端子型号Terminal model: 8Pin-26# 3302 引线黑色+JST端子 PH2.0

Pin 1 电机绕组Motor winding 3 黑色Black	Pin 2 电机绕组Motor winding 1 黑色Black	Pin 3 电机绕组Motor winding 2 黑色Black
Pin 4 霍尔传感器Hall GND 黑色Black	Pin 5 霍尔传感器Hall sensor 1 黑色Black	Pin 6 霍尔传感器Hall sensor 2 黑色Black
Pin 7 霍尔传感器Hall sensor 3 黑色Black	Pin 8 霍尔传感器Hall Vcc 3.3-5V黑色Black	

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	194g
相数 (Number of phases)	3		



电机参数 Motor specifications		10A	15A	06A	02A
1 额定电压 (Nominal voltage)	V	21	24	36	48
2 空载转速 (No load speed)	rpm	16500	16500	15000	16500
3 空载电流 (No load current)	mA	360	400	210	190
4 额定转速 (Nominal speed)	rpm	15100	15100	13800	17200
5 额定转矩 (Nominal torque)	mNm	81.68	76.2	60.1	87.29
6 额定电流 (Nominal current)	A	7.05	5.85	2.81	3.7
7 堵转转矩 (Stall torque)	mNm	1021	952.5	750.1	1091.2
8 堵转电流 (Stall current)	A	84	68.57	32.73	44.04
9 相间电阻 (Terminal resistance)	Ω	0.25	0.35	1.1	1.09
10 转矩常数 (Torque constant)	mNm/A	11.91	13.61	22.46	27.22
11 速度常数 (Speed constant)	rpm/V	785	687	416	343
12 机械时间常数 (Mechanical time constant)	ms	2.64	2.83	3.26	2.77
13 转子惯量 (Rotor inertia)	gcm ²	16.31	16.31	16.31	16.31

可配减速箱 Optional gearbox

GPA32	见Page 97
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可配编码器 Optional encoder

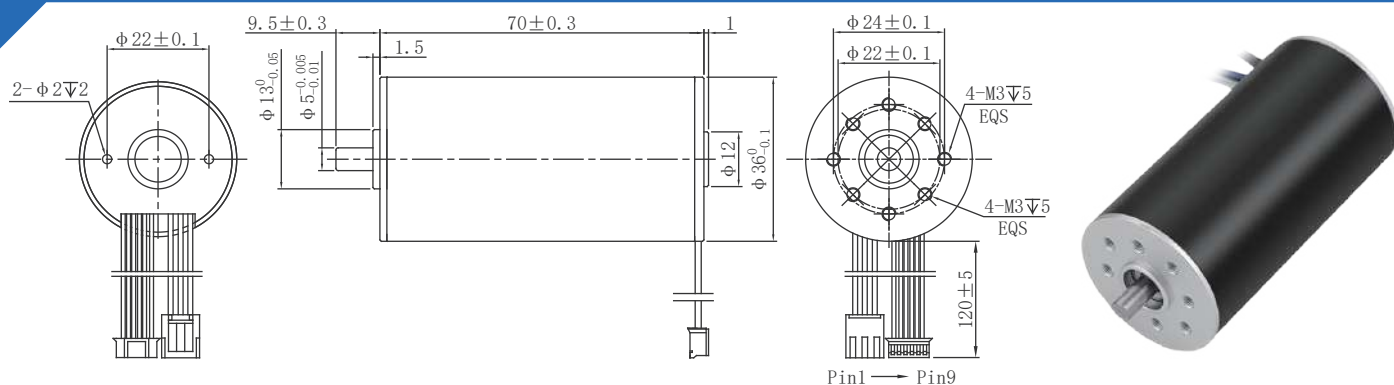
EM22	增量式 (Incremental) 1~16384ppr 1~3通道 (channel)	见Page 103
EM22	绝对式 (Absolute) 21 bit single turn	见Page 104

端子数据 Terminal data

端子型号 Terminal model: Pin 1 ~ Pin 3 XHP-3 XH2.5 AWG22 PE	Pin 4 ~ Pin 8 JST PHR-5P PH2.0 AWG26 PE	
Pin 1 电机绕组 Motor winding 1 黑色 Black	Pin 2 电机绕组 Motor winding 2 黄色 Yellow	Pin 3 电机绕组 Motor winding 3 红色 Red
Pin 4 霍尔传感器 Hall GND 黄色 Yellow	Pin 5 霍尔传感器 Hall sensor 2 蓝色 Blue	Pin 6 霍尔传感器 Hall sensor 3 白色 White
Pin 7 霍尔传感器 Hall sensor 1 黑色 Black	Pin 8 霍尔传感器 Hall Vcc 3.3-5V 红色 Red	

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	243g
相数 (Number of phases)	3		



电机参数 Motor specifications		02A	06XA	04XA	08A
1 额定电压 (Nominal voltage)	V	24	24	40	48
2 空载转速 (No load speed)	rpm	7000	16500	15500	17500
3 空载电流 (No load current)	mA	160	450	260	320
4 额定转速 (Nominal speed)	rpm	6300	15100	14260	16100
5 额定转矩 (Nominal torque)	mNm	69.77	140.37	187.77	159.66
6 额定电流 (Nominal current)	A	2.28	10.52	7.86	6.39
7 堵转转矩 (Stall torque)	mNm	734.4	1754.6	2347.2	1995.8
8 堵转电流 (Stall current)	A	22.43	126.32	95.24	76.19
9 相间电阻 (Terminal resistance)	Ω	1.07	0.19	0.42	0.63
10 转矩常数 (Torque constant)	mNm/A	32.08	13.61	24.15	25.67
11 速度常数 (Speed constant)	rpm/V	291	687	387	364
12 机械时间常数 (Mechanical time constant)	ms	2.87	2.83	1.99	2.64
13 转子惯量 (Rotor inertia)	gcm ²	30.8	30.8	30.8	30.8

可配减速箱 Optional gearbox

GPA35	见Page 98
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可配编码器 Optional encoder

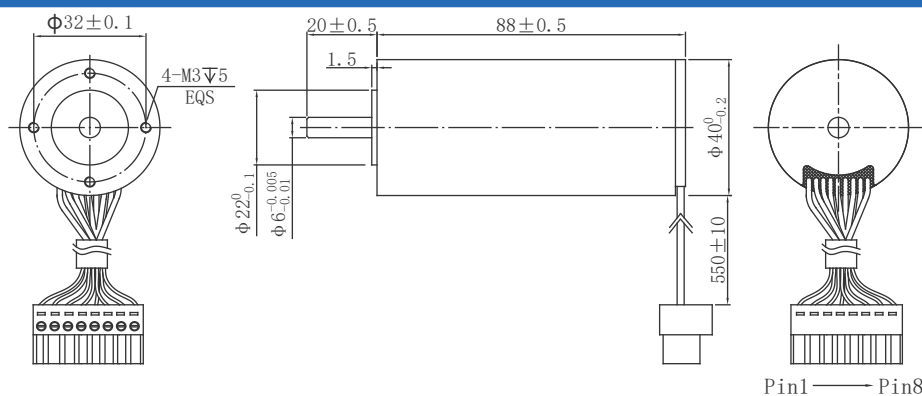
EM22	增量式 (Incremental) 1-16384ppr 1-3通道 (channel)	见Page 103
EM22	绝对式 (Absolute) 21 bit single turn	见Page 104

端子数据 Terminal data

端子型号 Terminal model: Pin 1 ~ Pin 3 VHR-3N PH3.96 UL1430 AWG20 PVC	Pin 4 ~ Pin 9 JST A2001H-6P PH2.0 UL1332 PTEF AWG24	
Pin 1 电机绕组 Motor winding 3 白色 White	Pin 2 电机绕组 Motor winding 2 黑色 Black	Pin 3 电机绕组 Motor winding 1 蓝色 Blue
Pin 4 霍尔传感器 Hall GND 黑色 Black	Pin 5 霍尔传感器 Hall sensor 3 黑色 Black	Pin 6 霍尔传感器 Hall sensor 2 黑色 Black
Pin 7 霍尔传感器 Hall sensor 1 黑色 Black	Pin 8 霍尔传感器 Hall Vcc 3.3-5V 黑色 Black	Pin 9 温控传感器 NTC 黑色 Black

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	325g
相数 (Number of phases)	3		



电机参数 Motor specifications

03A

04A

02A

01A

1 额定电压 (Nominal voltage)	V	32	36	48	48
2 空载转速 (No load speed)	rpm	10500	8000	10300	12000
3 空载电流 (No load current)	mA	750	300	290	500
4 额定转速 (Nominal speed)	rpm	9600	7300	9400	11000
5 额定转矩 (Nominal torque)	mNm	219.14	179.37	237.36	271.64
6 额定电流 (Nominal current)	A	8.22	4.45	5.6	7.53
7 堵转转矩 (Stall torque)	mNm	2739.3	2242.2	2967	3395.6
8 堵转电流 (Stall current)	A	94.12	52.17	66.67	88.89
9 相间电阻 (Terminal resistance)	Ω	0.34	0.69	0.72	0.54
10 转矩常数 (Torque constant)	mNm/A	28.52	42.11	43.61	37.43
11 速度常数 (Speed constant)	rpm/V	328	222	214	250
12 机械时间常数 (Mechanical time constant)	ms	3.06	2.85	2.77	2.82
13 转子惯量 (Rotor inertia)	gcm ²	79.84	79.84	79.84	79.84

可配减速箱 Optional gearbox

可配编码器 Optional encoder

EM22	增量式 (Incremental) 1~16384ppr 1~3通道 (channel)	见Page 103
EM22	绝对式 (Absolute) 21 bit single turn	见Page 104

端子数据 Terminal data

端子型号 Terminal model: 拔插式凤凰接线端子 EX2EDG-5.08 8Pin 硅胶线 16AWG

Pin 1 电机绕组 Motor winding 1

Pin 2 电机绕组 Motor winding 2

Pin 3 电机绕组 Motor winding 3

Pin 4 霍尔传感器 Hall GND

Pin 5 霍尔传感器 Hall sensor 1

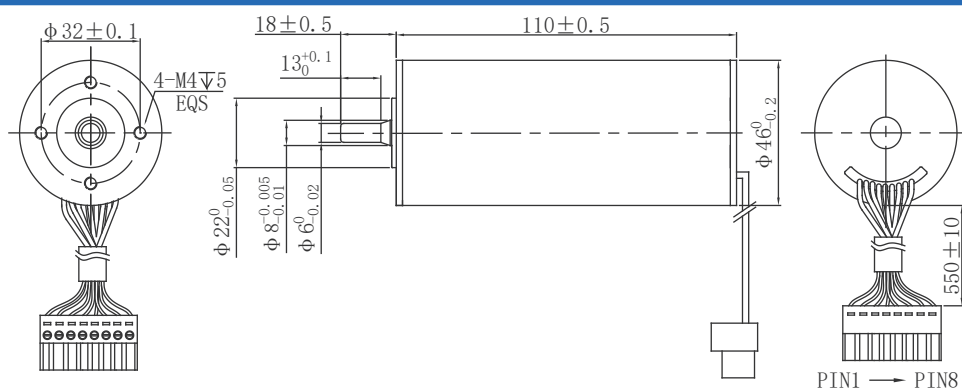
Pin 6 霍尔传感器 Hall sensor 2

Pin 7 霍尔传感器 Hall sensor 3

Pin 8 霍尔传感器 Hall Vcc 3.3-5V

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	457g
相数 (Number of phases)	3		



电机参数 Motor specifications		01A	04A	03A	02A
1 额定电压 (Nominal voltage)	V	24	30	48	48
2 空载转速 (No load speed)	rpm	9000	8000	8000	9000
3 空载电流 (No load current)	mA	950	750	600	650
4 额定转速 (Nominal speed)	rpm	8200	7300	7300	8200
5 额定转矩 (Nominal torque)	mNm	444.51	358.13	360.71	514.69
6 额定电流 (Nominal current)	A	18.28	10.69	6.85	10.7
7 堵转转矩 (Stall torque)	mNm	5556.4	4476.6	4508.9	6433.7
8 堵转电流 (Stall current)	A	218.18	125	78.69	126.32
9 相间电阻 (Terminal resistance)	Ω	0.11	0.24	0.61	0.38
10 转矩常数 (Torque constant)	mNm/A	24.95	35.09	56.15	49.91
11 速度常数 (Speed constant)	rpm/V	375	266	166	187
12 机械时间常数 (Mechanical time constant)	ms	2.28	2.52	2.5	1.97
13 转子惯量 (Rotor inertia)	gcm ²	140.9	140.9	140.9	140.9

可配减速箱 Optional gearbox

可配编码器 Optional encoder

EM22	增量式 (Incremental) 1-16384ppr 1-3通道 (channel)	见Page 103
EM22	绝对式 (Absolute) 21 bit single turn	见Page 104

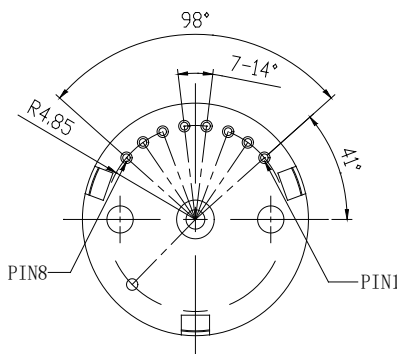
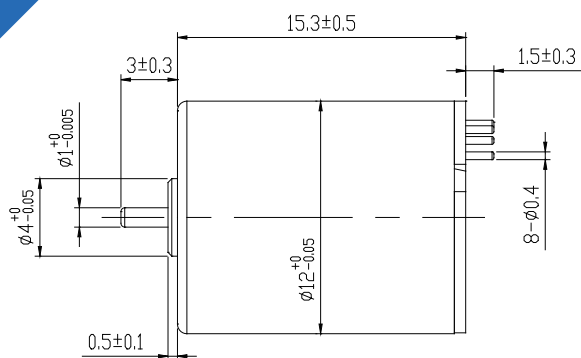
端子数据 Terminal data

端子型号 Terminal model: 拔插式凤凰接线端子 EX2EDG-5.08 8Pin 硅胶线 16AWG

Pin 1 电机绕组 Motor winding 1	Pin 2 电机绕组 Motor winding 2	Pin 3 电机绕组 Motor winding 3
Pin 4 霍尔传感器 Hall GND	Pin 5 霍尔传感器 Hall sensor 1	Pin 6 霍尔传感器 Hall sensor 2
Pin 7 霍尔传感器 Hall sensor 3	Pin 8 霍尔传感器 Hall Vcc 3.3-5V	

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	1	电机重量 (Weight of motor)	955g
相数 (Number of phases)	3		



电机参数 Motor specifications

		01A	02A
1 额定电压 (Nominal voltage)	V	7.4	12
2 空载转速 (No load speed)	rpm	28900	29200
3 空载电流 (No load current)	mA	120	80
4 额定转速 (Nominal speed)	rpm	26010	26280
5 额定转矩 (Nominal torque)	mNm	1.0	1.03
6 额定电流 (Nominal current)	A	0.52	0.34
7 堵转转矩 (Stall torque)	mNm	10.0	10.3
8 堵转电流 (Stall current)	A	4.09	2.64
9 相间电阻 (Terminal resistance)	Ω	1.81	4.55
10 转矩常数 (Torque constant)	mNm/A	2.44	3.9
11 速度常数 (Speed constant)	rpm/V	3905.4	2433.3
12 机械时间常数 (Mechanical time constant)	ms	4.89	4.77
13 转子惯量 (Rotor inertia)	gcm ²	0.17	0.17

可配减速箱 Optional gearbox

可配编码器 Optional encoder

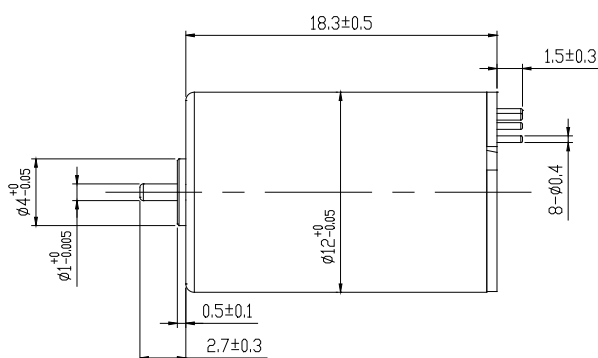
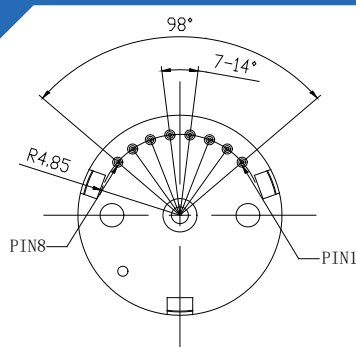
端子数据 Terminal data

端子型号 Terminal model: 8Pin排针

Pin 1 电机绕组 Motor winding 1	Pin 2 霍尔传感器 Hall sensor 3	Pin 3 霍尔传感器 Hall VCC DC 3.3~5V	Pin 4 电机绕组 Motor winding 2
Pin 5 霍尔传感器 Hall sensor 2	Pin 6 霍尔传感器 Hall GND	Pin 7 电机绕组 Motor winding 3	Pin 8 霍尔传感器 Hall sensor 1

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	2	电机重量 (Weight of motor)	12g
相数 (Number of phases)	3		



电机参数 Motor specifications		01A	02A	03A
1 额定电压 (Nominal voltage)	V	7.4	12	12
2 空载转速 (No load speed)	rpm	32250	31600	19200
3 空载电流 (No load current)	mA	160	100	100
4 额定转速 (Nominal speed)	rpm	29025	28440	17280
5 额定转矩 (Nominal torque)	mNm	1.69	1.79	1.2
6 额定电流 (Nominal current)	A	0.91	0.58	0.29
7 堵转转矩 (Stall torque)	mNm	16.9	17.9	12
8 堵转电流 (Stall current)	A	7.71	4.94	2.0
9 相间电阻 (Terminal resistance)	Ω	0.96	2.43	5.99
10 转矩常数 (Torque constant)	mNm/A	2.19	3.62	6.0
11 速度常数 (Speed constant)	rpm/V	4358.1	2633.3	1600
12 机械时间常数 (Mechanical time constant)	ms	3.54	3.32	3.02
13 转子惯量 (Rotor inertia)	gcm ²	0.19	0.19	0.19

可配减速箱 Optional gearbox	
G12MF	见Page 90
G12XL	见Page 91

可配编码器 Optional encoder

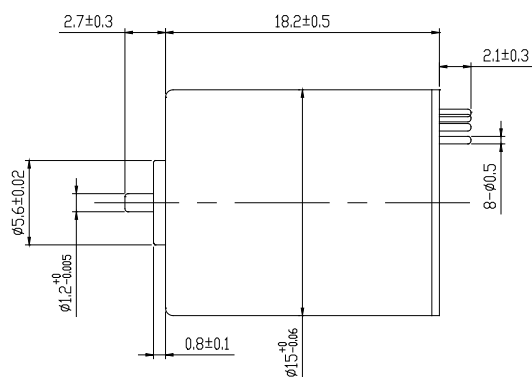
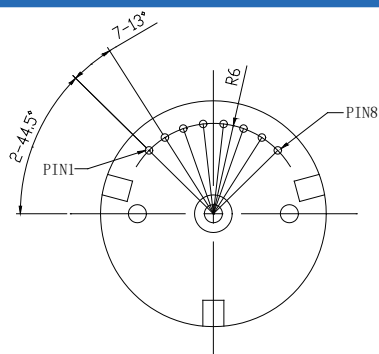
端子数据 Terminal data

端子型号Terminal model: 8Pin排针

Pin 1 电机绕组Motor winding 1	Pin 2 霍尔传感器Hall sensor 3	Pin 3 霍尔传感器Hall VCC DC 3.3~5V	Pin 4 电机绕组Motor winding 2
Pin 5 霍尔传感器Hall sensor 2	Pin 6 霍尔传感器 Hall GND	Pin 7 电机绕组Motor winding 3	Pin 8 霍尔传感器Hall sensor 1

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	2	电机重量 (Weight of motor)	12g
相数 (Number of phases)	3		



电机参数 Motor specifications

01A

02A

03A

1 额定电压 (Nominal voltage)	V	7.4	12	12
2 空载转速 (No load speed)	rpm	31000	32800	22400
3 空载电流 (No load current)	mA	170	130	100
4 额定转速 (Nominal speed)	rpm	27900	29520	20160
5 额定转矩 (Nominal torque)	mNm	1.98	2.48	1.54
6 额定电流 (Nominal current)	A	1.02	0.83	0.39
7 堵转转矩 (Stall torque)	mNm	19.8	24.8	15.4
8 堵转电流 (Stall current)	A	8.71	7.1	3.01
9 相间电阻 (Terminal resistance)	Ω	0.85	1.69	3.99
10 转矩常数 (Torque constant)	mNm/A	2.27	3.49	5.11
11 速度常数 (Speed constant)	rpm/V	4189.2	2733.3	1866.6
12 机械时间常数 (Mechanical time constant)	ms	4.42	3.74	4.12
13 转子惯量 (Rotor inertia)	gcm ²	0.28	0.28	0.28

可配减速箱 Optional gearbox

可配编码器 Optional encoder

端子数据 Terminal data

端子型号 Terminal model: 8Pin排针

Pin 1 电机绕组 Motor winding 3

Pin 2 霍尔传感器 Hall GND

Pin 3 霍尔传感器 Hall sensor 2

Pin 4 霍尔传感器 Hall sensor 1

Pin 5 电机绕组 Motor winding 2

Pin 6 霍尔传感器 Hall VCC DC 3.3-5V

Pin 7 霍尔传感器 Hall sensor 3

Pin 8 电机绕组 Motor winding 1

其他参数 Other specifications

工作温度范围 (Operating temperature range)

-20...+80°C

轴承类型 (Bearing type)

含油轴承 (Sleeve bearings)

极对数 (Number of pole pairs)

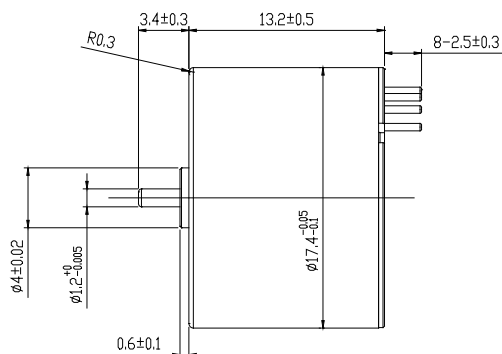
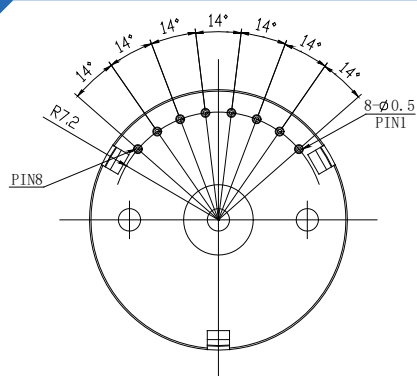
2

电机重量 (Weight of motor)

16g

相数 (Number of phases)

3



电机参数 Motor specifications		01A	02A	03A	06A
1 额定电压 (Nominal voltage)	V	4.8	7.4	7.4	12
2 空载转速 (No load speed)	rpm	17600	23500	31500	27000
3 空载电流 (No load current)	mA	190	170	270	130
4 额定转速 (Nominal speed)	rpm	15840	21150	28350	24300
5 额定转矩 (Nominal torque)	mNm	0.73	1.47	1.75	1.67
6 额定电流 (Nominal current)	A	0.45	0.64	1.02	0.51
7 堵转转矩 (Stall torque)	mNm	7.3	14.7	17.5	16.7
8 堵转电流 (Stall current)	A	2.79	4.9	7.79	3.95
9 相间电阻 (Terminal resistance)	Ω	1.72	1.51	0.95	3.04
10 转矩常数 (Torque constant)	mNm/A	2.6	3.0	2.24	4.22
11 速度常数 (Speed constant)	rpm/V	3666.6	3175.7	4256.7	2250
12 机械时间常数 (Mechanical time constant)	ms	9.96	6.56	7.42	6.63
13 转子惯量 (Rotor inertia)	gcm ²	0.41	0.41	0.41	0.41

可配减速箱 Optional gearbox

可配编码器 Optional encoder

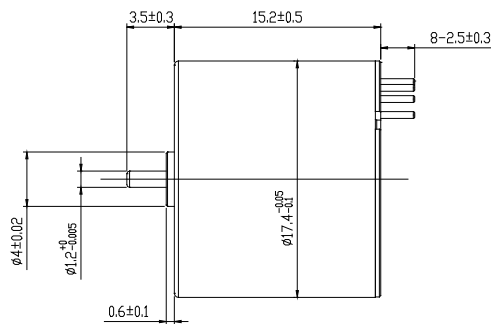
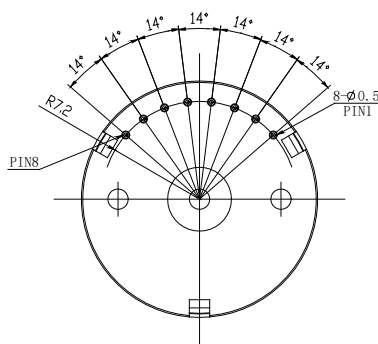
端子数据 Terminal data

端子型号 Terminal model: 8Pin排针

- Pin 1 电机绕组 Motor winding 1
- Pin 2 霍尔传感器 Hall sensor 3
- Pin 3 霍尔传感器 Hall VCC DC 3.3-5V
- Pin 4 电机绕组 Motor winding 2
- Pin 5 霍尔传感器 Hall sensor 2
- Pin 6 霍尔传感器 Hall GND
- Pin 7 电机绕组 Motor winding 3
- Pin 8 霍尔传感器 Hall sensor 1

其他参数 Other specifications

- 工作温度范围 (Operating temperature range) -20...+80°C
- 轴承类型 (Bearing type) 含油轴承 (Sleeve bearings)
- 极对数 (Number of pole pairs) 2
- 电机重量 (Weight of motor) 15g
- 相数 (Number of phases) 3



电机参数 Motor specifications		02A	03A	04A	01A
1 额定电压 (Nominal voltage)	V	7.4	7.4	7.4	12
2 空载转速 (No load speed)	rpm	29200	26300	27650	28300
3 空载电流 (No load current)	mA	220	200	200	140
4 额定转速 (Nominal speed)	rpm	26280	23670	24885	25470
5 额定转矩 (Nominal torque)	mNm	2.52	2.03	2.1	2.43
6 额定电流 (Nominal current)	A	1.24	0.94	1.0	0.73
7 堵转转矩 (Stall torque)	mNm	25.2	20.3	21.0	24.3
8 堵转电流 (Stall current)	A	10.42	7.55	8.22	6.0
9 相间电阻 (Terminal resistance)	Ω	0.71	0.98	0.9	2.0
10 转矩常数 (Torque constant)	mNm/A	2.4	2.68	2.55	4.05
11 速度常数 (Speed constant)	rpm/V	3945.9	3554.0	3736.5	2358.3
12 机械时间常数 (Mechanical time constant)	ms	6.03	6.76	6.86	6.07
13 转子惯量 (Rotor inertia)	gcm ²	0.52	0.52	0.52	0.52

可配减速箱 Optional gearbox

可配编码器 Optional encoder

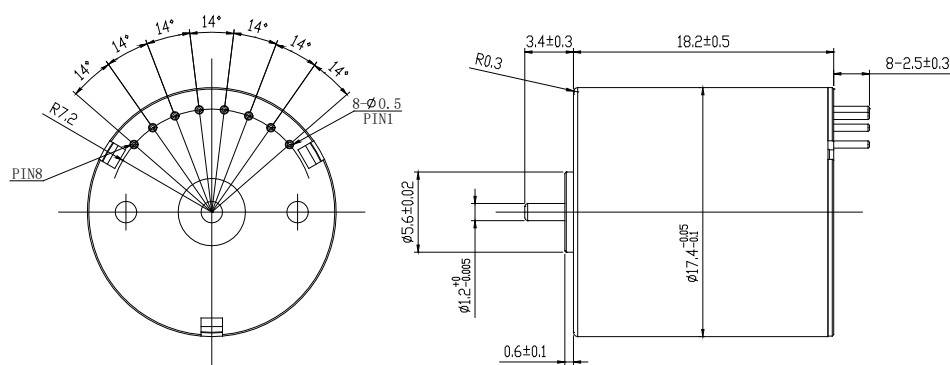
端子数据 Terminal data

端子型号 Terminal model: 8Pin排针

Pin 1 电机绕组 Motor winding 1	Pin 2 霍尔传感器 Hall sensor 3	Pin 3 霍尔传感器 Hall VCC DC 3.3~5V	Pin 4 电机绕组 Motor winding 2
Pin 5 霍尔传感器 Hall sensor 2	Pin 6 霍尔传感器 Hall GND	Pin 7 电机绕组 Motor winding 3	Pin 8 霍尔传感器 Hall sensor 1

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	2	电机重量 (Weight of motor)	16.5g
相数 (Number of phases)	3		



电机参数 Motor specifications		04A	02A	03A	01A
1 额定电压 (Nominal voltage)	V	7.4	12	16	24
2 空载转速 (No load speed)	rpm	25000	30000	30000	30000
3 空载电流 (No load current)	mA	260	180	150	130
4 额定转速 (Nominal speed)	rpm	22500	27000	27000	27000
5 额定转矩 (Nominal torque)	mNm	3.8	4.05	4.2	4.05
6 额定电流 (Nominal current)	A	1.58	1.22	0.96	0.65
7 堵转转矩 (Stall torque)	mNm	38.0	40.5	42.0	40.5
8 堵转电流 (Stall current)	A	13.45	10.62	8.25	5.3
9 相间电阻 (Terminal resistance)	Ω	0.55	1.13	1.94	4.53
10 转矩常数 (Torque constant)	mNm/A	2.82	3.81	5.09	7.64
11 速度常数 (Speed constant)	rpm/V	3378.3	2500	1875	1250
12 机械时间常数 (Mechanical time constant)	ms	4.4	4.95	4.78	4.96
13 转子惯量 (Rotor inertia)	gcm ²	0.67	0.67	0.67	0.67

可配减速箱 Optional gearbox

可配编码器 Optional encoder

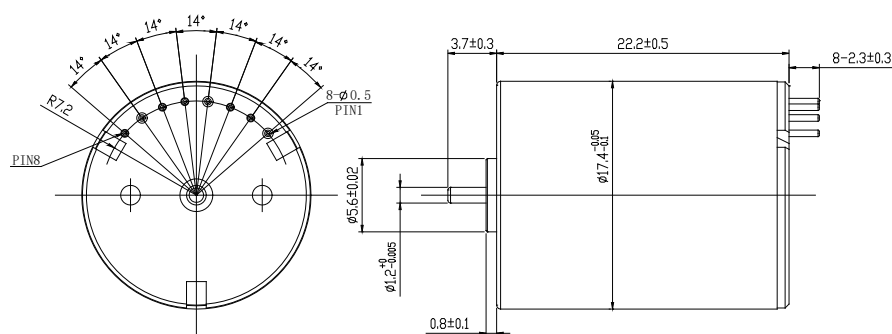
端子数据 Terminal data

端子型号 Terminal model: 8Pin排针

Pin 1 电机绕组 Motor winding 1	Pin 2 霍尔传感器 Hall sensor 3	Pin 3 霍尔传感器 Hall VCC DC 3.3-5V	Pin 4 电机绕组 Motor winding 2
Pin 5 霍尔传感器 Hall sensor 2	Pin 6 霍尔传感器 Hall GND	Pin 7 电机绕组 Motor winding 3	Pin 8 霍尔传感器 Hall sensor 1

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	2	电机重量 (Weight of motor)	20.8g
相数 (Number of phases)	3		



电机参数 Motor specifications		04A	02A	03A	01A
1 额定电压 (Nominal voltage)	V	7.4	12	16	24
2 空载转速 (No load speed)	rpm	23300	23300	26000	25400
3 空载电流 (No load current)	mA	200	140	170	90
4 额定转速 (Nominal speed)	rpm	20970	20970	23400	22860
5 额定转矩 (Nominal torque)	mNm	4.58	4.27	5.19	4.84
6 额定电流 (Nominal current)	A	1.69	1.0	1.04	0.62
7 堵转转矩 (Stall torque)	mNm	45.8	42.7	51.9	48.4
8 堵转电流 (Stall current)	A	15.1	8.7	8.84	5.37
9 相间电阻 (Terminal resistance)	Ω	0.49	1.38	1.81	4.47
10 转矩常数 (Torque constant)	mNm/A	3.03	4.9	5.87	9.0
11 速度常数 (Speed constant)	rpm/V	3148.6	1941.7	1625	1058.3
12 机械时间常数 (Mechanical time constant)	ms	3.66	3.92	3.6	3.77
13 转子惯量 (Rotor inertia)	gcm ²	0.72	0.72	0.72	0.72

可配减速箱 Optional gearbox

可配编码器 Optional encoder

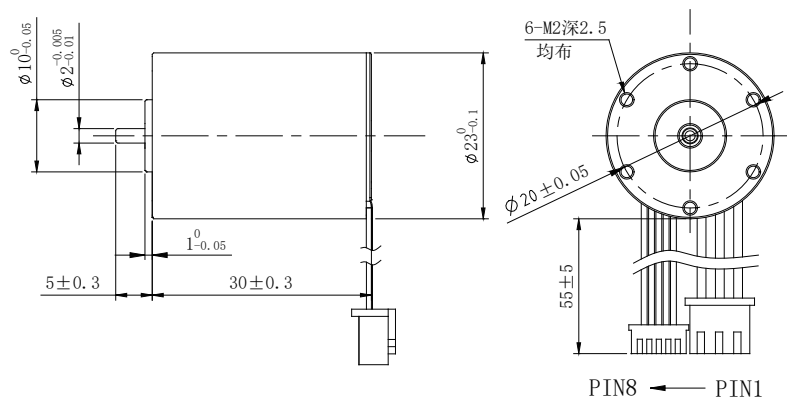
端子数据 Terminal data

端子型号 Terminal model: 8Pin排针

Pin 1 电机绕组 Motor winding 1	Pin 2 霍尔传感器 Hall sensor 3	Pin 3 霍尔传感器 Hall VCC DC 3.3-5V	Pin 4 电机绕组 Motor winding 2
Pin 5 霍尔传感器 Hall sensor 2	Pin 6 霍尔传感器 Hall GND	Pin 7 电机绕组 Motor winding 3	Pin 8 霍尔传感器 Hall sensor 1

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	含油轴承 (Sleeve bearings)
极对数 (Number of pole pairs)	2	电机重量 (Weight of motor)	26.3g
相数 (Number of phases)	3		



电机参数 Motor specifications		04A	01A	03A	05A
1 额定电压 (Nominal voltage)	V	7.4	12	24	30
2 空载转速 (No load speed)	rpm	10000	14000	16000	16000
3 空载电流 (No load current)	mA	110	100	100	100
4 额定转速 (Nominal speed)	rpm	10000	12600	14400	14400
5 额定转矩 (Nominal torque)	mNm	10.46	8.47	16.85	16.43
6 额定电流 (Nominal current)	A	1.58	1.12	1.27	1.01
7 堵转转矩 (Stall torque)	mNm	104.6	84.7	168.5	164.3
8 堵转电流 (Stall current)	A	14.8	10.34	11.76	9.17
9 相间电阻 (Terminal resistance)	Ω	0.5	1.16	2.04	3.27
10 转矩常数 (Torque constant)	mNm/A	7	8.18	14.32	17.9
11 速度常数 (Speed constant)	rpm/V	1351	1166.7	666.7	533.3
12 机械时间常数 (Mechanical time constant)	ms	3.81	6.58	3.78	3.88
13 转子惯量 (Rotor inertia)	gcm ²	3.98	3.98	3.98	3.98

可配减速箱 Optional gearbox

G22MF 见Page 95

可配编码器 Optional encoder

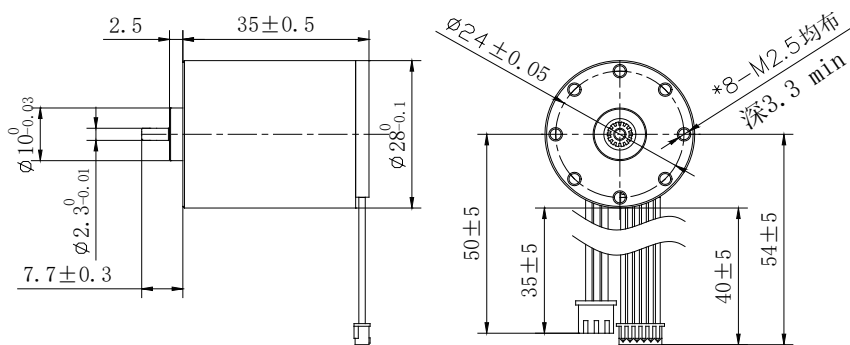
EM22 增量式(Incremental) 1-1024ppr 1-3通道(channel) 见Page 103
EM22 绝对式(Absolute) 14 bit single turn 见Page 104

端子数据 Terminal data

端子型号Terminal model: Pin 1 ~ Pin 3 AWG24 JST XHP-3 XH2.5 Pin 4 ~ Pin 8 AWG26 MOLEX SD-51021-006 1.25间距
Pin 1 电机绕组Motor winding 1 Red Pin 2 电机绕组Motor winding 2 Yellow Pin 3 电机绕组Motor winding 3 Black Pin 4 霍尔传感器Hall GND Black
Pin 5 霍尔传感器Hall VCC DC 3.3~5V Black Pin 6 霍尔传感器Hall sensor 1 Black Pin 7 霍尔传感器Hall sensor 2 Black Pin 8 霍尔传感器Hall sensor 3 Black

其他参数 Other specifications

工作温度范围 (Operating temperature range) -20...+80°C 轴承类型 (Bearing type) 滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs) 2 电机重量 (Weight of motor) 63g
相数 (Number of phases) 3



1-3 4-9



电机参数 Motor specifications		05A	03A	02A	01A
1 额定电压 (Nominal voltage)	V	8.4	12	12	24
2 空载转速 (No load speed)	rpm	12900	8500	13700	13700
3 空载电流 (No load current)	mA	150	130	150	200
4 额定转速 (Nominal speed)	rpm	11610	7650	12330	12330
5 额定转矩 (Nominal torque)	mNm	13.39	21.57	20.08	20.59
6 额定电流 (Nominal current)	A	2.29	1.72	2.54	1.41
7 堵转转矩 (Stall torque)	mNm	133.9	215.7	200.8	205.9
8 堵转电流 (Stall current)	A	21.54	16	24	12.31
9 相间电阻 (Terminal resistance)	Ω	0.39	0.75	0.5	1.95
10 转矩常数 (Torque constant)	mNm/A	6.22	13.48	8.36	16.73
11 速度常数 (Speed constant)	rpm/V	1535.7	708.3	1141.7	570.83
12 机械时间常数 (Mechanical time constant)	ms	11.52	1.35	8.16	7.96
13 转子惯量 (Rotor inertia)	gcm ²	11.96	11.96	11.96	11.96

可配减速箱 Optional gearbox

G28MT 见Page 96

可配编码器 Optional encoder

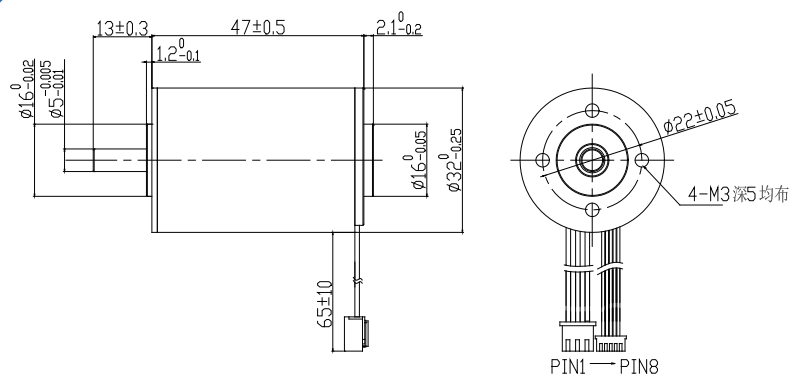
EM22 增量式 (Incremental) 1-1024ppr 1-3通道 (channel) 见Page 103
EM22 绝对式 (Absolute) 14 bit single turn 见Page 104

端子数据 Terminal data

端子型号 Terminal model: Pin 1 ~ Pin 3 AWG24 JST XHP-3 XH2.5 Pin 4 ~ Pin 8 AWG26 MOLEX SD-51021-006 1.25间距
Pin 1 电机绕组 Motor winding 1 Black Pin 2 电机绕组 Motor winding 2 Yellow Pin 3 电机绕组 Motor winding 3 Red Pin 4 NTC
Pin 5 霍尔传感器 Hall GND Black Pin 6 霍尔传感器 Hall VCC DC 3.3~5V3 Black Pin 7 霍尔传感器 Hall sensor 3 Black Pin 8 霍尔传感器 Hall sensor 2 Black
Pin 9 霍尔传感器 Hall sensor 1 Black

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	2	电机重量 (Weight of motor)	98g
相数 (Number of phases)	3		



电机参数 Motor specifications		02A	01A	03A	04A
1 额定电压 (Nominal voltage)	V	12	24	36	48
2 空载转速 (No load speed)	rpm	10800	10800	10800	10800
3 空载电流 (No load current)	mA	260	200	180	150
4 额定转速 (Nominal speed)	rpm	9720	9720	9720	9720
5 额定转矩 (Nominal torque)	mNm	44.68	43.91	45.3	43.91
6 额定电流 (Nominal current)	A	4.44	2.25	1.6	1.17
7 堵转转矩 (Stall torque)	mNm	446.8	439.1	453	439.1
8 堵转电流 (Stall current)	A	42.11	20.69	14.23	10.34
9 相间电阻 (Terminal resistance)	Ω	0.285	1.16	2.53	4.64
10 转矩常数 (Torque constant)	mNm/A	10.6	21.2	31.8	42.4
11 速度常数 (Speed constant)	rpm/V	900	450	300	225
12 机械时间常数 (Mechanical time constant)	ms	5.71	5.81	5.64	5.81
13 转子惯量 (Rotor inertia)	gcm ²	23.64	23.64	23.64	23.64

可配减速箱 Optional gearbox

GPA32	见Page 97
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可配编码器 Optional encoder

EM22	增量式(Incremental) 1-1024ppr 1-3通道(channel)	见Page 103
EM22	绝对式(Absolute) 14 bit single turn	见Page 104

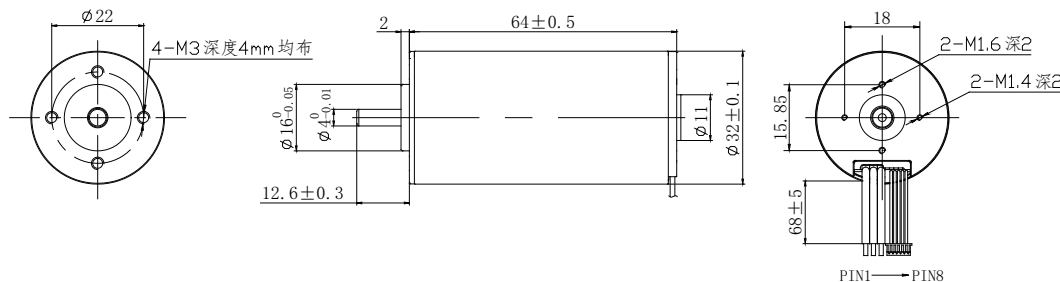
端子数据 Terminal data

端子型号Terminal model: Pin 1 ~ Pin 3 AWG24 JST XHP-3 XH2.5 Pin 4 ~ Pin 8 AWG26 MOLEX SD-51021-006 1.25间距

Pin 1 电机绕组Motor winding 1 Black	Pin 2 电机绕组Motor winding 2 Yellow	Pin 3 电机绕组Motor winding 3 Red	Pin 4 霍尔传感器Hall GND Black
Pin 5 霍尔传感器Hall sensor 2 Yellow	Pin 6 霍尔传感器Hall sensor 3 White	Pin 7 霍尔传感器Hall sensor 1 Blue	Pin 8 霍尔传感器Hall VCC DC 3.3-5V Red

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	2	电机重量 (Weight of motor)	240g
相数 (Number of phases)	3		



电机参数 Motor specifications		03A	01A	02A	04A
1 额定电压 (Nominal voltage)	V	24	36	40	48
2 空载转速 (No load speed)	rpm	9100	14300	18800	14300
3 空载电流 (No load current)	mA	180	280	270	230
4 额定转速 (Nominal speed)	rpm	8190	12870	16920	12870
5 额定转矩 (Nominal torque)	mNm	143.9	221.9	280.26	216.72
6 额定电流 (Nominal current)	A	5.88	9.47	14.04	6.97
7 堵转转矩 (Stall torque)	mNm	1439.2	2219.3	2802.6	2167.2
8 堵转电流 (Stall current)	A	57.14	92.3	139.93	67.61
9 相间电阻 (Terminal resistance)	Ω	0.42	0.39	0.27	0.71
10 转矩常数 (Torque constant)	mNm/A	25.2	24	20.32	32
11 速度常数 (Speed constant)	rpm/V	379.2	397.2	470	297.9
12 机械时间常数 (Mechanical time constant)	ms	2.41	2.45	2.55	2.51
13 转子惯量 (Rotor inertia)	gcm ²	38.08	38.08	38.08	38.08

可配减速箱 Optional gearbox

GPA32	见Page 97
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可配编码器 Optional encoder

EM22	增量式 (Incremental) 1-1024ppr 1-3通道 (channel)	见Page 103
EM22	绝对式 (Absolute) 14 bit single turn	见Page 104

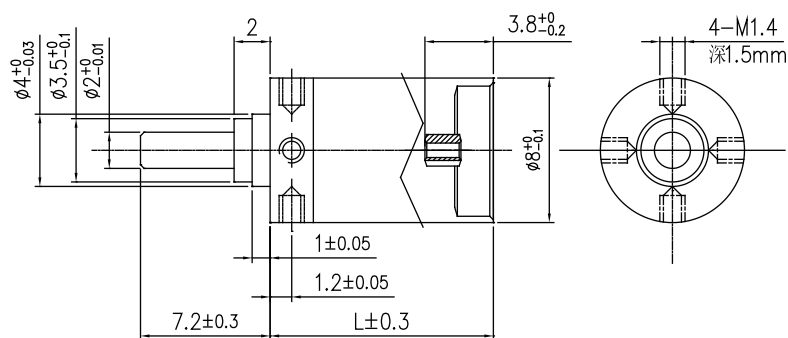
端子数据 Terminal data

端子型号 Terminal model: Pin 1 ~ Pin 3 AWG20 Pin 4 ~ Pin 8 AWG26 MOLEX SD-51021-006 1.25间距

Pin 1 电机绕组 Motor winding 1 Black	Pin 2 电机绕组 Motor winding 2 White	Pin 3 电机绕组 Motor winding 3 Red	Pin 4 霍尔传感器 Hall GND Black
Pin 5 霍尔传感器 Hall sensor 1 Yellow	Pin 6 霍尔传感器 Hall sensor 2 White	Pin 7 霍尔传感器 Hall sensor 3 Blue	Pin 8 霍尔传感器 Hall VCC DC 3.3-5V Red

其他参数 Other specifications

工作温度范围 (Operating temperature range)	-20...+80°C	轴承类型 (Bearing type)	滚珠轴承 (Ball bearings)
极对数 (Number of pole pairs)	2	电机重量 (Weight of motor)	276g
相数 (Number of phases)	3		

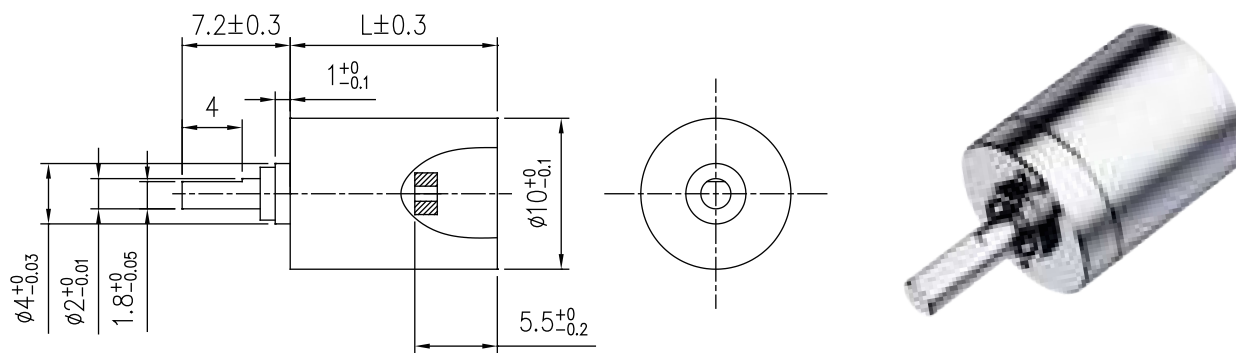


减速箱参数 Gearbox Specifications

减速比 (Reduction)		4	16	36	64	216	256	864
		6	24		96		384	1296
级数 (Number of stages)		1	2		3		4	
					144		576	
最大连续转矩 (Max. continuous torque)	Nm	0.005	0.01		0.02		0.03	
堵转转矩 (Stall torque)	Nm	0.01	0.02		0.05		0.05	
最大效率 (Max. efficiency)	%	90	80		70		60	
减速箱长度 (Gearbox length)	mm	9.8	12.4		15		17.6	
空载回差 (No load backlash)	°	1.5	1.5		2		2	
重量 (Weight)	g	3	4		5		6	

技术参数 Technical Parameters

输出端轴承 (Bearing at output)	滚珠轴承 Ball bearings
径向间隙 (距法兰12mm处) (Radial play, 12mm from flange)	≤0.1mm
轴向间隙 (Axial play at axial load)	≤0.2mm
推荐输入转速 (Recommended input speed)	≤8000rpm
推荐温度范围 (Recommended temperature range)	-10...+60°C
允许安装力 (Force for press fits)	≤10N
径向负载 (距法兰12mm处) (Radial load, 12mm from flange)	≤5N
轴向负载 (Axial load)	≤5N

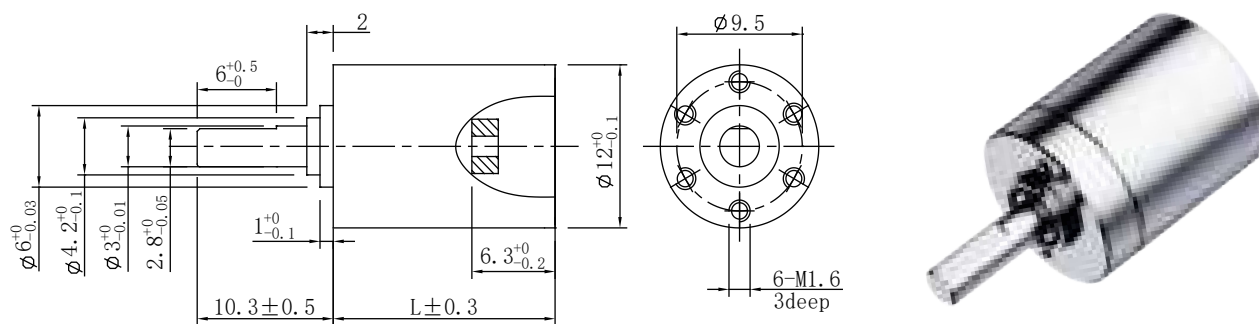


减速箱参数 Gearbox Specifications

减速比 (Reduction)		3.25	10.56	16	34.33	64	111.57	208
		4	13		42.25		137.31	256
					52		169	
级数 (Number of stages)		1	2		3		4	
最大连续转矩 (Max. continuous torque)	Nm	0.01	0.025		0.03		0.05	
堵转转矩 (Stall torque)	Nm	0.02	0.05		0.08		0.1	
最大效率 (Max. efficiency)	%	90	80		70		60	
减速箱长度 (Gearbox length)	mm	10.8	13.8		16.8		19.8	
空载回差 (No load backlash) (MT版数据)	°	2	3		3		4	
重量 (Weight)	g	5.5	7		8.5		10	

技术参数 Technical Parameters

输出端轴承 (Bearing at output)	滚珠轴承 Ball bearings
径向间隙 (距法兰12mm处) (Radial play, 12mm from flange)	≤0.1mm
轴向间隙 (Axial play at axial load)	≤0.2mm
推荐输入转速 (Recommended input speed)	≤8000rpm
推荐温度范围 (Recommended temperature range)	-10...+60°C
允许安装力 (Force for press fits)	≤10N
径向负载 (距法兰12mm处) (Radial load, 12mm from flange)	≤5N
轴向负载 (Axial load)	≤5N

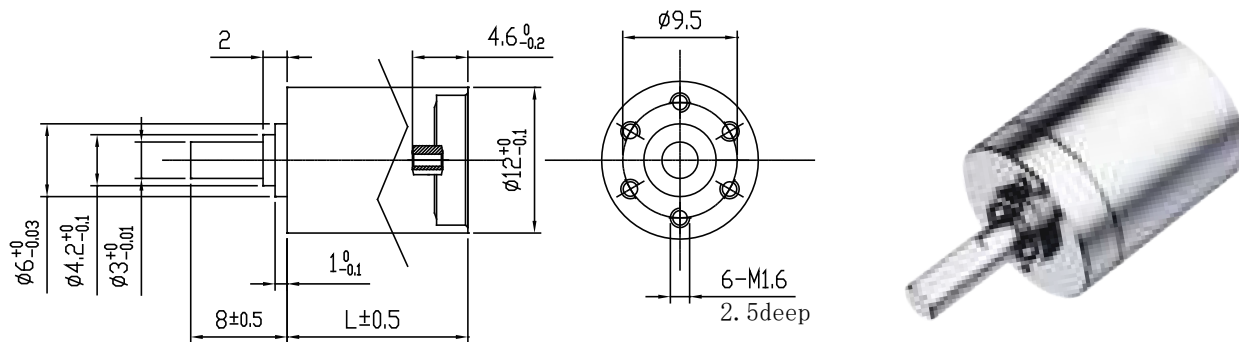


减速箱参数 Gearbox Specifications

减速比 (Reduction)		3.75	14.06	21.78	52.73	101.65	197.75	381.19
		4.667	17.5		65.63		246.11	474.4
级数 (Number of stages)		1	2		3		4	
					81.68		306.29	
最大连续转矩 (Max. continuous torque)	Nm	0.2	0.2		0.3		0.4	
堵转转矩 (Stall torque)	Nm	0.3	0.3		0.5		0.5	
最大效率 (Max. efficiency)	%	90	80		70		60	
减速箱长度 (Gearbox length)	mm	13.1	16.8		20.5		24.2	
空载回差 (No load backlash) (MT版数据)	°	2	3		3		4	
重量 (Weight)	g	9	12		15		18	

技术参数 Technical Parameters

输出端轴承 (Bearing at output)	滚珠轴承 Ball bearings
径向间隙 (距法兰12mm处) (Radial play, 12mm from flange)	≤0.1mm
轴向间隙 (Axial play at axial load)	≤0.2mm
推荐输入转速 (Recommended input speed)	≤10,000rpm
推荐温度范围 (Recommended temperature range)	-10...+60°C
允许安装力 (Force for press fits)	≤10N
径向负载 (距法兰12mm处) (Radial load, 12mm from flange)	≤8N
轴向负载 (Axial load)	≤10N

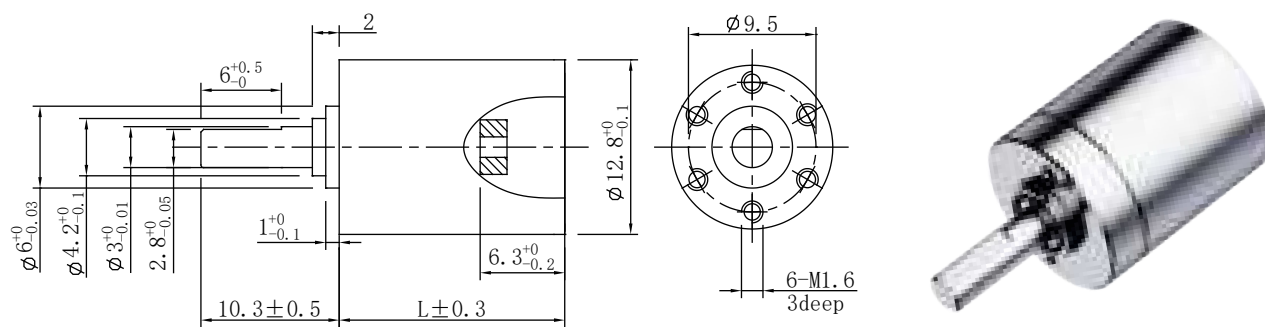


减速箱参数 Gearbox Specifications

减速比 (Reduction)		4	16	36	64	216	256	864
		6	24		96		384	1296
级数 (Number of stages)		1	2		3		4	
					144		576	
最大连续转矩 (Max. continuous torque)	Nm	0.02	0.03		0.05		0.08	
堵转转矩 (Stall torque)	Nm	0.05	0.06		0.08		0.1	
最大效率 (Max. efficiency)	%	90	80		70		60	
减速箱长度 (Gearbox length)	mm	11.9	15		18.1		21.2	
空载回差 (No load backlash)	°	1.5	1.5		2		2	
重量 (Weight)	g	9	12		15		18	

技术参数 Technical Parameters

输出端轴承 (Bearing at output)	滚珠轴承 Ball bearings
径向间隙 (距法兰12mm处) (Radial play, 12mm from flange)	≤0.1mm
轴向间隙 (Axial play at axial load)	≤0.2mm
推荐输入转速 (Recommended input speed)	≤8000rpm
推荐温度范围 (Recommended temperature range)	-10...+60°C
允许安装力 (Force for press fits)	≤10N
径向负载 (距法兰12mm处) (Radial load, 12mm from flange)	≤8N
轴向负载 (Axial load)	≤10N

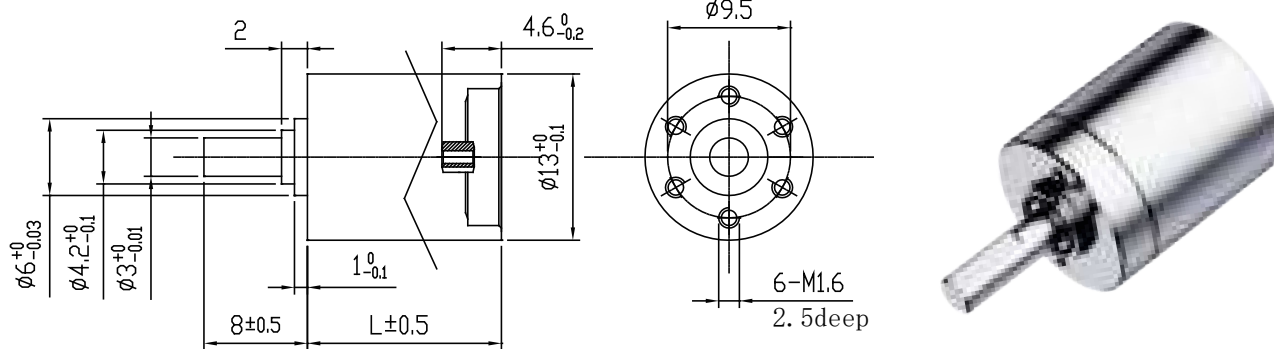


减速箱参数 Gearbox Specifications

减速比 (Reduction)		3.75	14.06	21.78	52.73	101.65	197.75	381.19
		4.667	17.5		65.63		246.11	474.4
级数 (Number of stages)		1	2		3		4	
					81.68		306.29	
最大连续转矩 (Max. continuous torque)	Nm	0.2	0.2		0.3		0.4	
堵转转矩 (Stall torque)	Nm	0.3	0.3		0.5		0.5	
最大效率 (Max. efficiency)	%	90	80		70		60	
减速箱长度 (Gearbox length)	mm	13.1	16.8		20.5		24.2	
空载回差 (No load backlash) (MT版数据)	°	2	3		3		4	
重量 (Weight)	g	12	15		18		21	

技术参数 Technical Parameters

输出端轴承 (Bearing at output)	滚珠轴承 Ball bearings
径向间隙 (距法兰12mm处) (Radial play, 12mm from flange)	≤0.1mm
轴向间隙 (Axial play at axial load)	≤0.2mm
推荐输入转速 (Recommended input speed)	≤10,000rpm
推荐温度范围 (Recommended temperature range)	-10...+60°C
允许安装力 (Force for press fits)	≤10N
径向负载 (距法兰12mm处) (Radial load, 12mm from flange)	≤8N
轴向负载 (Axial load)	≤10N

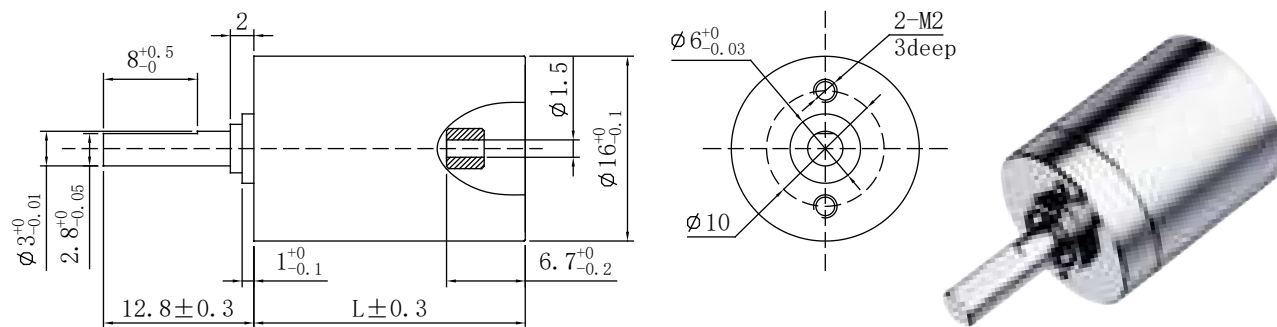


减速箱参数 Gearbox Specifications

减速比 (Reduction)		4	16	36	64	216	256	864
		6	24		96		384	1296
级数 (Number of stages)		1	2		3		4	
					144		576	
最大连续转矩 (Max. continuous torque)	Nm	0.02	0.03		0.05		0.08	
堵转转矩 (Stall torque)	Nm	0.05	0.06		0.08		0.1	
最大效率 (Max. efficiency)	%	90	80		70		60	
减速箱长度 (Gearbox length)	mm	11.9	15		18.1		21.2	
空载回差 (No load backlash)	°	1.5	1.5		2		2	
重量 (Weight)	g	12	15		18		21	

技术参数 Technical Parameters

输出端轴承 (Bearing at output)	滚珠轴承 Ball bearings
径向间隙 (距法兰12mm处) (Radial play, 12mm from flange)	≤0.1mm
轴向间隙 (Axial play at axial load)	≤0.2mm
推荐输入转速 (Recommended input speed)	≤8000rpm
推荐温度范围 (Recommended temperature range)	-10...+60°C
允许安装力 (Force for press fits)	≤10N
径向负载 (距法兰12mm处) (Radial load, 12mm from flange)	≤8N
轴向负载 (Axial load)	≤10N

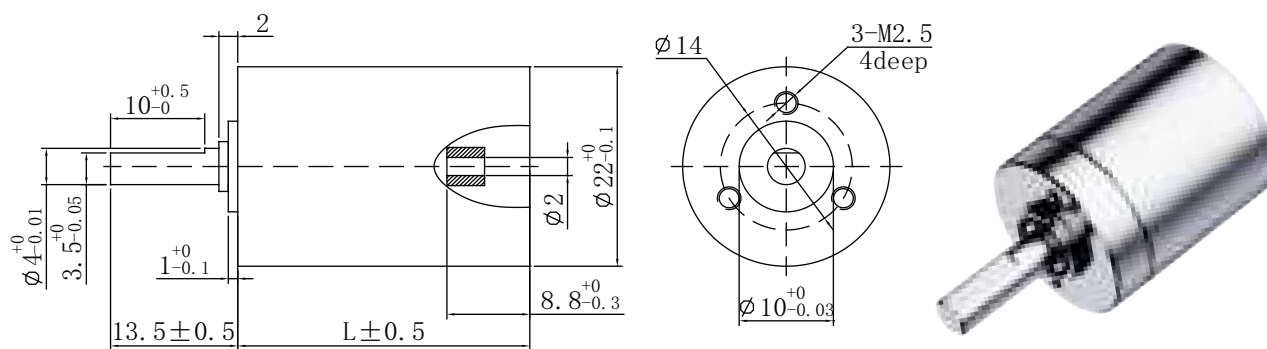


减速箱参数 Gearbox Specifications

减速比 (Reduction)		4	16	27.04	64	140.6	256	562.4
		5.2	20.8		83.2		332.8	731.12
级数 (Number of stages)		1	2		3		4	
					108.16		432.64	
最大连续转矩 (Max. continuous torque)	Nm	0.2	0.2		0.3		0.35	
堵转转矩 (Stall torque)	Nm	0.3	0.3		0.45		0.5	
最大效率 (Max. efficiency)	%	90	80		70		60	
减速箱长度 (Gearbox length)	mm	14.9	19		23.1		27.2	
空载回差 (No load backlash) (MT版数据)	°	2	3		3		4	
重量 (Weight)	g	20	24		28		32	

技术参数 Technical Parameters

输出端轴承 (Bearing at output)	滚珠轴承 Ball bearings
径向间隙 (距法兰12mm处) (Radial play, 12mm from flange)	$\leq 0.1\text{mm}$
轴向间隙 (Axial play at axial load)	$\leq 0.2\text{mm}$
推荐输入转速 (Recommended input speed)	$\leq 10,000\text{rpm}$
推荐温度范围 (Recommended temperature range)	$-10 \dots +60^\circ\text{C}$
允许安装力 (Force for press fits)	$\leq 10\text{N}$
径向负载 (距法兰12mm处) (Radial load, 12mm from flange)	$\leq 8\text{N}$
轴向负载 (Axial load)	$\leq 10\text{N}$

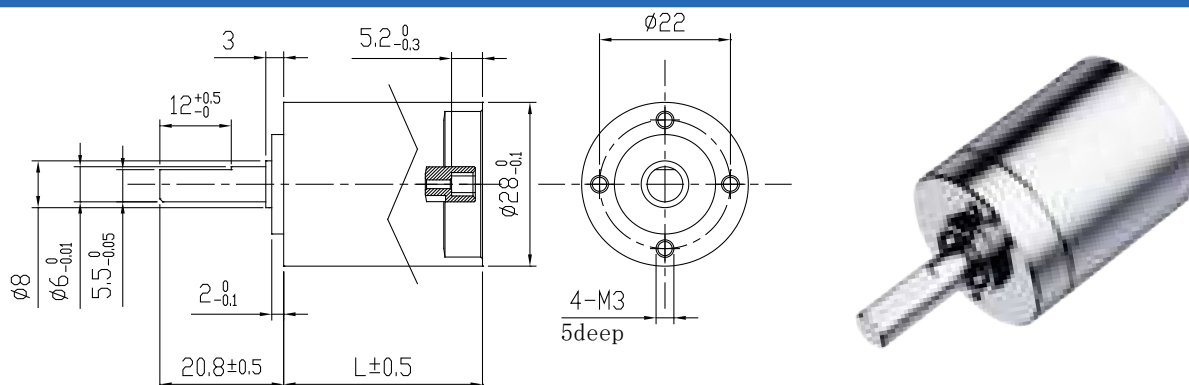


减速箱参数 Gearbox Specifications

减速比 (Reduction)		4	16	36	64	216	256	864
		6	24		96		384	1296
级数 (Number of stages)		1	2		3		4	
					144		576	
最大连续转矩 (Max. continuous torque)	Nm	0.3	0.4		0.5		0.6	
堵转转矩 (Stall torque)	Nm	0.5	0.5		0.8		0.8	
最大效率 (Max. efficiency)	%	90	80		70		60	
减速箱长度 (Gearbox length)	mm	21.2	26.1		31		35.9	
空载回差 (No load backlash) (MT版数据)	°	2	3		3		4	
重量 (Weight)	g	35	45		55		65	

技术参数 Technical Parameters

输出端轴承 (Bearing at output)	滚珠轴承 Ball bearings
径向间隙 (距法兰12mm处) (Radial play, 12mm from flange)	≤0.1mm
轴向间隙 (Axial play at axial load)	≤0.2mm
推荐输入转速 (Recommended input speed)	≤10,000rpm
推荐温度范围 (Recommended temperature range)	-10...+60°C
允许安装力 (Force for press fits)	≤10N
径向负载 (距法兰12mm处) (Radial load, 12mm from flange)	≤8N
轴向负载 (Axial load)	≤10N

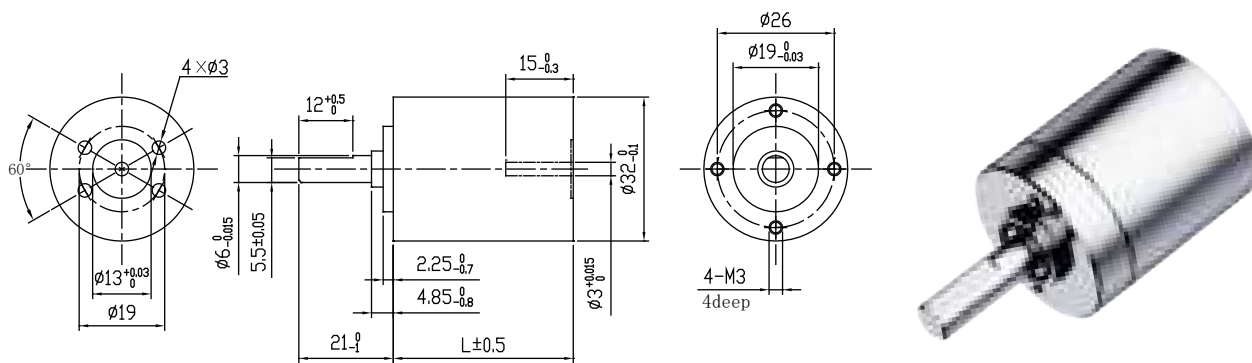


减速箱参数 Gearbox Specifications

减速比 (Reduction)		4	16	36	64	216	256	864
		6	24		96		384	1296
					144		576	
级数 (Number of stages)		1	2		3		4	
最大连续转矩 (Max. continuous torque)	Nm	0.8	1.2		1.5		2	
堵转转矩 (Stall torque)	Nm	1.2	1.5		2		3	
最大效率 (Max. efficiency)	%	90	80		70		60	
减速箱长度 (Gearbox length)	mm	27.7	33.4		39.1		44.8	
空载回差 (No load backlash) (MT版数据)	°	2	3		3		4	
重量 (Weight)	g	90	110		130		150	

技术参数 Technical Parameters

输出端轴承 (Bearing at output)	滚珠轴承 Ball bearings
径向间隙 (距法兰12mm处) (Radial play, 12mm from flange)	≤0.1mm
轴向间隙 (Axial play at axial load)	≤0.2mm
推荐输入转速 (Recommended input speed)	≤10,000rpm
推荐温度范围 (Recommended temperature range)	-10...+60°C
允许安装力 (Force for press fits)	≤10N
径向负载 (距法兰12mm处) (Radial load, 12mm from flange)	≤8N
轴向负载 (Axial load)	≤10N

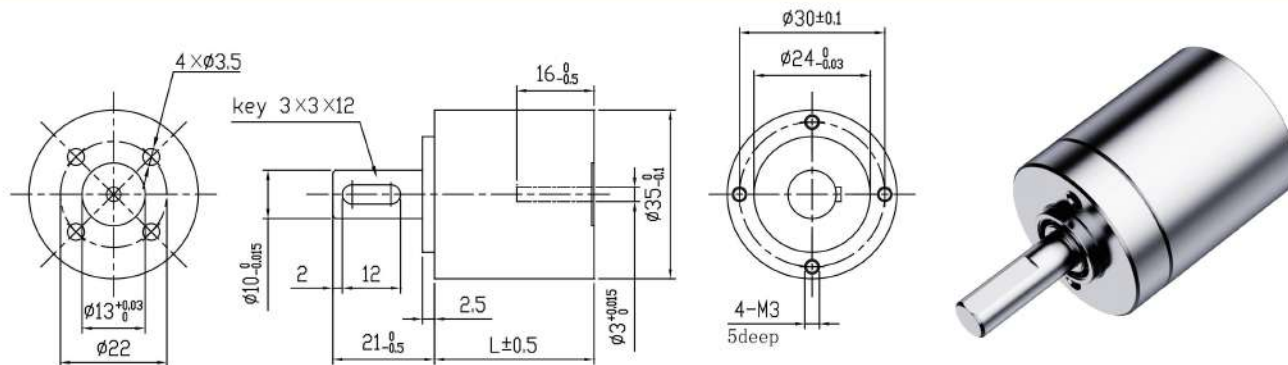


减速箱参数 Gearbox Specifications

减速比 (Reduction)		3.11	10	23	30	111	94	344
		4.8	15		46		145	531
级数 (Number of stages)		1	2		3		4	
					72		223	
最大连续转矩 (Max. continuous torque)	Nm	1.2	2.5		4.5		6	
堵转转矩 (Stall torque)	Nm	1.8	3.5		6.5		7.5	
最大效率 (Max. efficiency)	%	90	80		70		60	
减速箱长度 (Gearbox length)	mm	30.5	40		46.7		53.4	
空载回差 (No load backlash) (MT版数据)	°	1	1.2		1.5		1.5	
重量 (Weight)	g	115	150		175		200	

技术参数 Technical Parameters

输出端轴承 (Bearing at output)	滚珠轴承 Ball bearings
径向间隙 (距法兰12mm处) (Radial play, 12mm from flange)	≤0.1mm
轴向间隙 (Axial play at axial load)	≤0.1mm
推荐输入转速 (Recommended input speed)	≤8000rpm
推荐温度范围 (Recommended temperature range)	-20...+100°C
允许安装力 (Force for press fits)	≤120N
径向负载 (距法兰12mm处) (Radial load, 12mm from flange)	≤120N
轴向负载 (Axial load)	≤120N

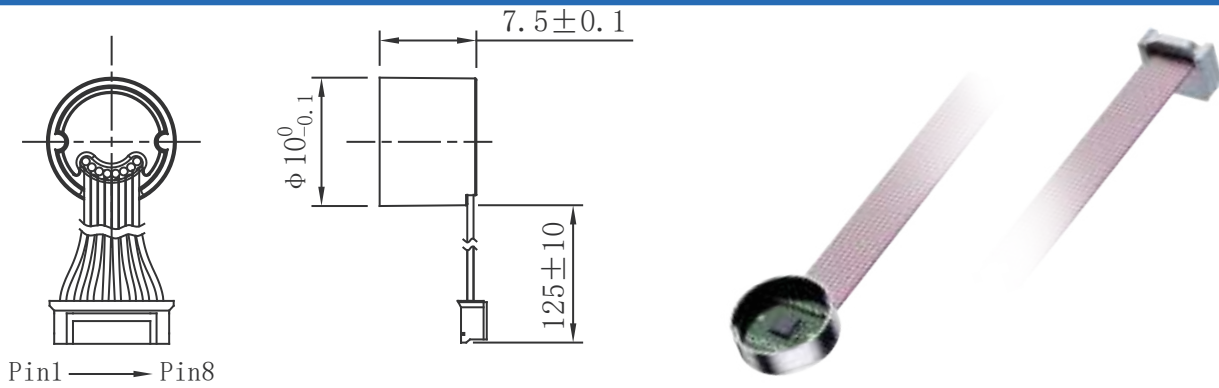


减速箱参数 Gearbox Specifications

减速比 (Reduction)		3.95	16	28	62	150	243	590
		5.31	21		83		326	794
级数 (Number of stages)		1	2		3		4	
						111	439	
最大连续转矩 (Max. continuous torque)	Nm	2	5		8		12	
堵转转矩 (Stall torque)	Nm	3	7.5		12		16	
最大效率 (Max. efficiency)	%	90	80		70		60	
减速箱长度 (Gearbox length)	mm	33	46		54		62	
空载回差 (No load backlash)	°	0.8	1.2		1.5		2.0	
重量 (Weight)	g	160	210		260		310	

技术参数 Technical Parameters

输出端轴承 (Bearing at output)	滚珠轴承 Ball bearings
径向间隙 (距法兰12mm处) (Radial play, 12mm from flange)	≤0.1mm
轴向间隙 (Axial play at axial load)	≤0.1mm
推荐输入转速 (Recommended input speed)	≤8000rpm
推荐温度范围 (Recommended temperature range)	-20...+100°C
允许安装力 (Force for press fits)	≤300N
径向负载 (距法兰12mm处) (Radial load, 12mm from flange)	≤220N
轴向负载 (Axial load)	≤150N



编码器参数 Encoder specifications

供电电压 (Supply voltage)	DC3.3~5V	上电时间 (Power-Up time)	35ms
典型电流值 (Typical current)	15mA	输出延迟 (Propagation delay)	$\leq 10\mu s$
最大机械速度 (Max. mechanical speed)	50000RPM	使用温度 (Operating temperature)	-40...+125°C
每转脉冲数 (Number of pulses per revolution)	1-1024PPR	编码器类别 (Encoder type)	磁编码器 Magnetic encoder

连接器型号 Connector model

Molex51021-0800 间距1.25mm

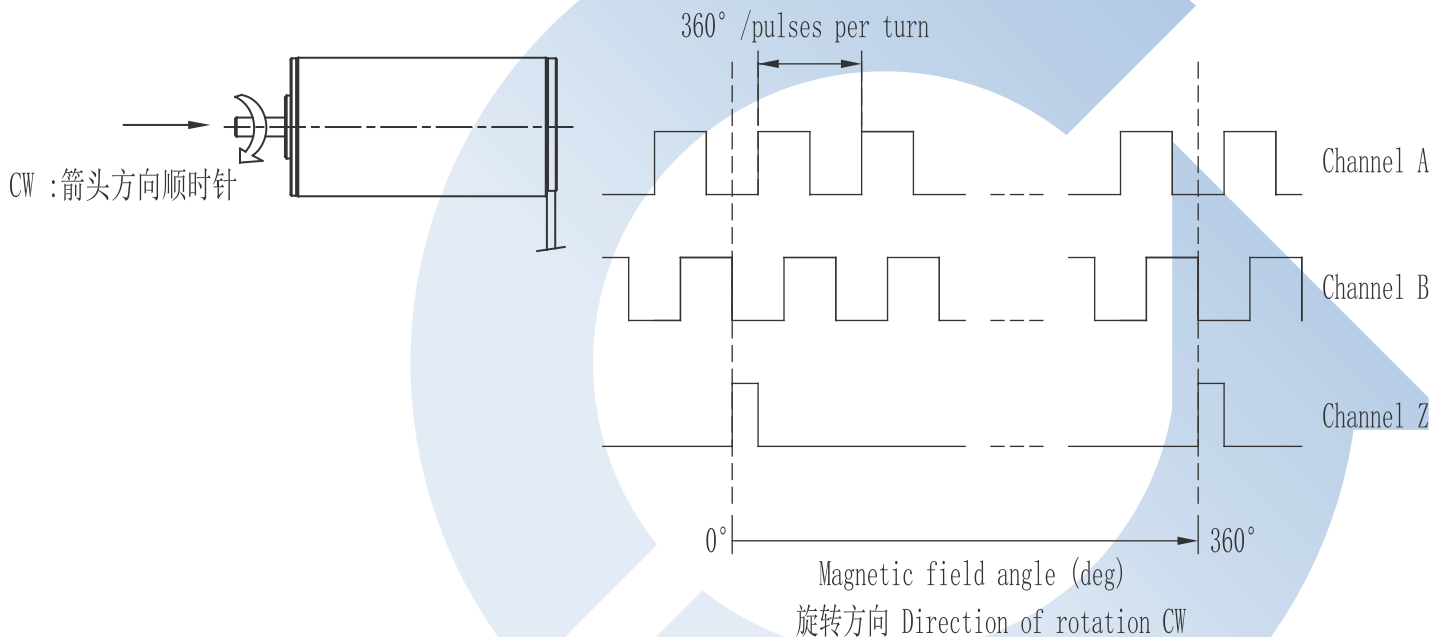
连接线型号 Cable model

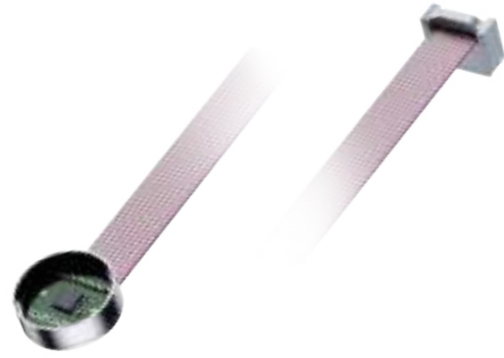
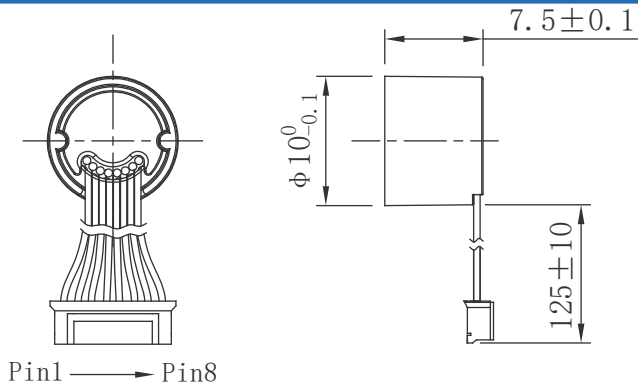
UL10064 28#AWG

线序 Cable sequence

Pin1 Motor + (有刷电机) 黑色Black	Pin2 GND 绿色Green	Pin3 VCC(DC3.3V~5V) 棕色Brown	Pin4 NC 白色White
Pin5 Channel A 黄色Yellow	Pin6 Channel B 紫色Purple	Pin7 Channel Z 灰色Gray	Pin8 Motor + (有刷电机) 蓝色Blue

典型编码器输出信号 Typical encoder output signal





编码器参数 Encoder specifications

供电电压 (Supply voltage)	DC3.3~5V	上电时间 (Power-Up time)	35ms
典型电流值 (Typical current)	15mA	输出延迟 (Propagation delay)	≤ 10μs
最大机械速度 (Max. mechanical speed)	50000RPM	使用温度 (Operating temperature)	-40...+125°C
单圈绝对编码 (Single-turn absolute coding)	14-bit (I ² C/SSI)	编码器类别 (Encoder type)	磁编码器 Magnetic encoder

连接器型号 Connector model

Molex51021-0800 间距1.25mm

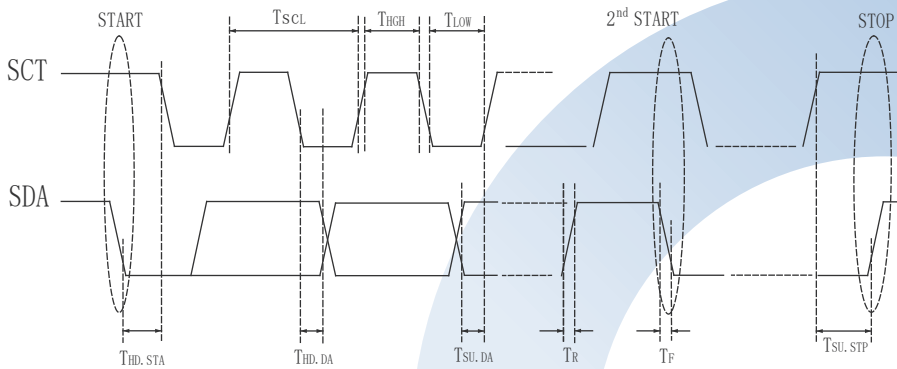
连接线型号 Cable model

UL10064 28#AWG

线序 Cable sequence

Pin 1 Motor + (有刷电机) 黑色Black	Pin 2 GND 绿色Green	Pin 3 Vcc (DC 3.3V-5V) 棕色Brown	Pin 4 NC 白色White
Pin 5 I ² C SDA 黄色Yellow	Pin 6 I ² C SCL 紫色Purple	Pin 7 NC 灰色Gray	Pin 8 Motor - (有刷电机) 蓝色Blue

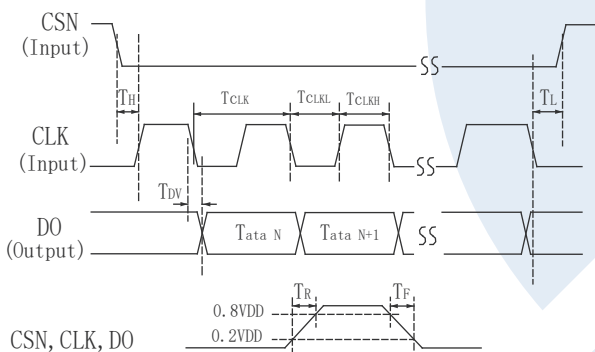
I²C时序图 Sequence diagram



I²C时序参数

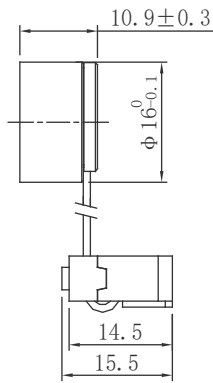
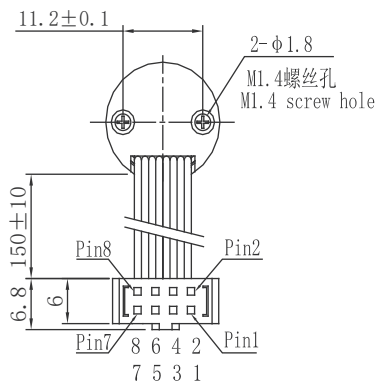
参数	描述	最小值	最大值	单位
SSCL	SCL时钟周期	1	-	μs
T _{HD, STA}	"开始通信"保持时间	250	-	ns
T _{LOW}	SCL低电平时间	250	-	ns
T _{HIGH}	SCL高电平时间	250	-	ns
T _{SU, DA}	SDA准备时间	100	-	ns
T _{HD, DA}	SDA保持时间	50	-	ns
T _R	SDA/SCL上升时间	-	150	ns
T _F	SDA/SCL下降时间	-	150	ns
T _{SU, STP}	"停止通信"准备时间	250	-	ns

SSI 时序图 Sequence diagram



SSI时序参数

参数	描述	最小值	典型值	最大值	单位
T _H	CSN上升沿和CLK下降时间间隔	100	-	-	ns
T _{CLK}	时间周期	64	-	-	ns
T _{CLKL}	时间低电平时间	30	-	-	ns
T _{CLKH}	时间高电平时间	30	-	-	ns
T _L	CLK最后一个下降沿和CSN上升沿时间间隔	0.5 • T _{CLK}	-	-	ns
T _R	数字信号上升沿 (20pf负载)	-	10	-	ns
T _F	数字信号下降沿 (20pf负载)	-	10	-	ns
T _{DV}	DO数据等待时间 (20pf负载)	-	-	15	ns



编码器参数 Encoder specifications

供电电压 (Supply voltage)	DC3.3~5V	上电时间 (Power-Up time)	35ms
典型电流值 (Typical current)	15mA	输出延迟 (Propagation delay)	≤ 10μs
最大机械速度 (Max. mechanical speed)	50000RPM	使用温度 (Operating temperature)	-40...+125°C
每转脉冲数 (Number of pulses per revolution)	1-1024PPR	编码器类别 (Encoder type)	磁编码器 Magnetic encoder

连接器型号 Connector model

EN 60603-13/DIN-41651 2.54mm 8 Pin

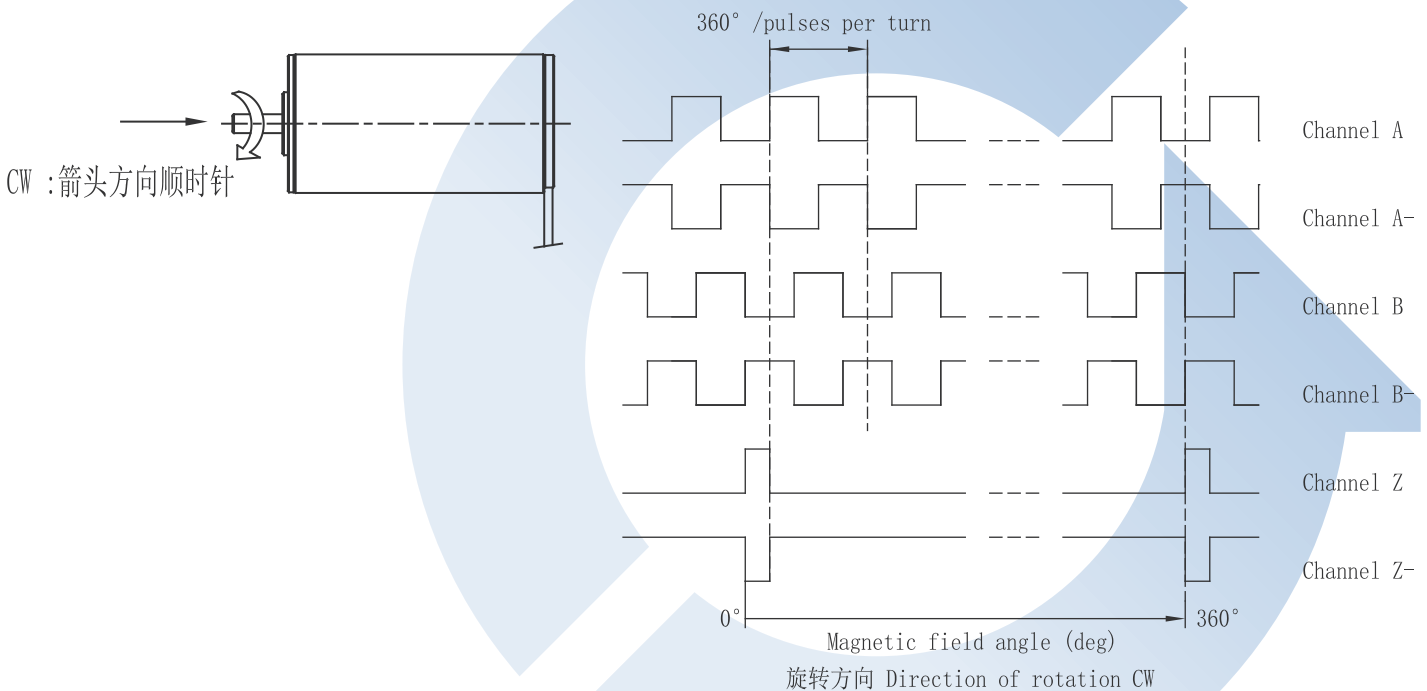
连接线型号 Cable model

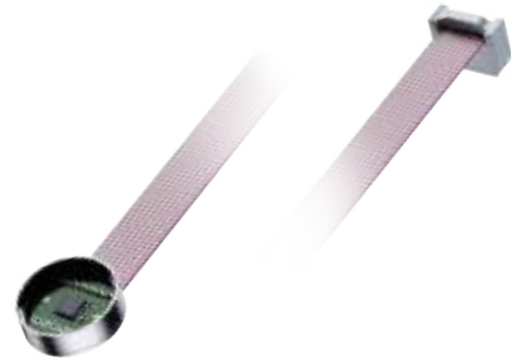
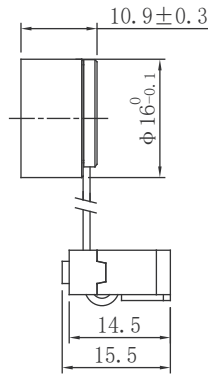
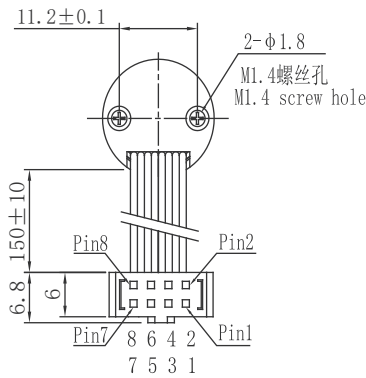
8 Pin UL2651 26AWG

线序 Cable sequence

Pin 1 Vcc (DC 3.3V-5V)	Pin 2 GND	Pin 3 Channel A-	Pin 4 Channel A
Pin 5 Channel B-	Pin 6 Channel B	Pin 7 Channel Z-	Pin 8 Channel Z

典型编码器输出信号 Typical encoder output signal





编码器参数 Encoder specifications

供电电压 (Supply voltage)	DC3.3~5V	上电时间 (Power-Up time)	35ms
典型电流值 (Typical current)	15mA	输出延迟 (Propagation delay)	≤ 10μs
最大机械速度 (Max. mechanical speed)	50000RPM	使用温度 (Operating temperature)	-40...+125°C
单圈绝对编码 (Single-turn absolute coding)	14-bit (I ² C/SSI)	编码器类别 (Encoder type)	磁编码器 Magnetic encoder

连接器型号 Connector model

EN 60603-13/DIN-41651 2.54mm 8 Pin

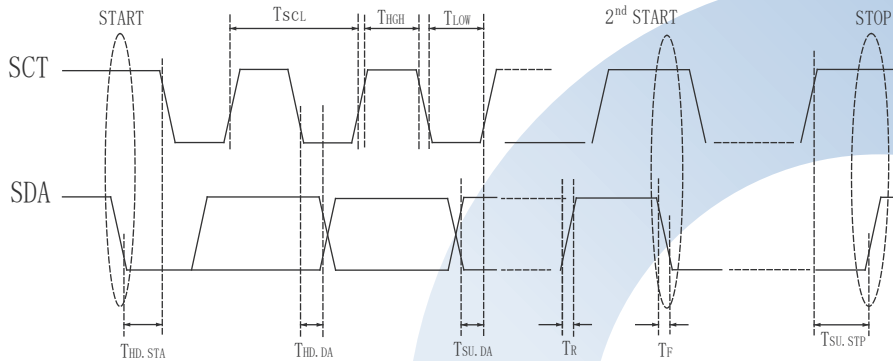
连接线型号 Cable model

8 Pin UL2651 26AWG

线序 Cable sequence

Pin 1 Vcc (DC 3.3V~5V)	Pin 2 GND	Pin 3 U	Pin 4 I ² C_SDA or SSI_DO
Pin 5 V	Pin 6 I ² C_SCL or SSI_CLK	Pin 7 W	Pin 8 SSI_CSN

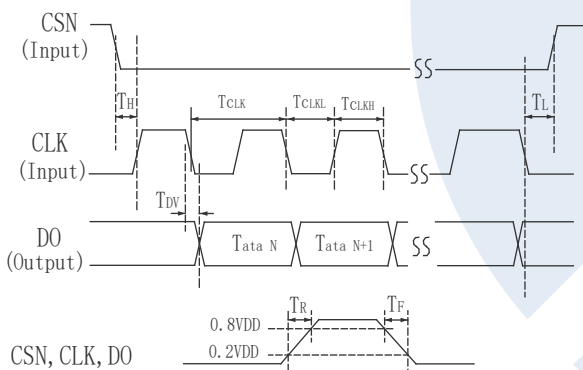
I²C时序图 Sequence diagram



I²C时序参数

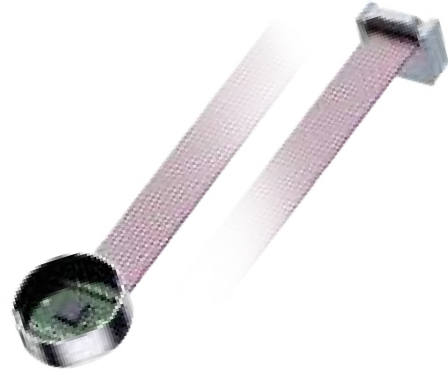
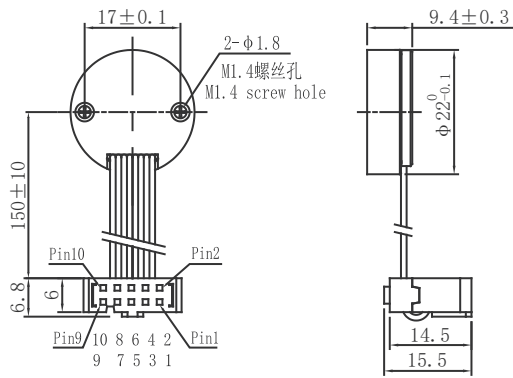
参数	描述	最小值	最大值	单位
SSCL	SCL时钟周期	1	-	μs
T _{HD_STA}	"开始通信"保持时间	250	-	ns
T _{LOW}	SCL低电平时间	250	-	ns
T _{HIGH}	SCL高电平时间	250	-	ns
T _{SU_DA}	SDA准备时间	100	-	ns
T _{HD_DA}	SDA保持时间	50	-	ns
T _R	SDA/SCL上升时间	-	150	ns
T _F	SDA/SCL下降时间	-	150	ns
T _{SU_STP}	"停止通信"准备时间	250	-	ns

SSI 时序图 Sequence diagram



SSI时序参数

参数	描述	最小值	典型值	最大值	单位
T _H	CSN上升沿和CLK下降时间间隔	100	-	-	ns
T _{CLK}	时间周期	64	-	-	ns
T _{CLKL}	时间低电平时间	30	-	-	ns
T _{CLKH}	时间高电平时间	30	-	-	ns
T _L	CLK最后一个下降沿和CSN上升沿时间间隔	0.5 • T _{CLK}	-	-	ns
T _R	数字信号上升沿 (20pf负载)	-	10	-	ns
T _F	数字信号下降沿 (20pf负载)	-	10	-	ns
T _{DV}	DO数据等待时间 (20pf负载)	-	-	15	ns



编码器参数 Encoder specifications

供电电压 (Supply voltage)	DC3.3~5V	上电时间 (Power-Up time)	65ms
典型电流值 (Typical current)	15mA	输出延迟 (Propagation delay)	≤ 10μs
最大机械速度 (Max. mechanical speed)	50000RPM	使用温度 (Operating temperature)	-40...+125°C
每转脉冲数 (Number of pulses per revolution)	1~16384PPR	编码器类别 (Encoder type)	磁编码器 Magnetic encoder

连接器型号 Connector model

EN 60603-13/DIN-41651 2.54mm 10 Pin

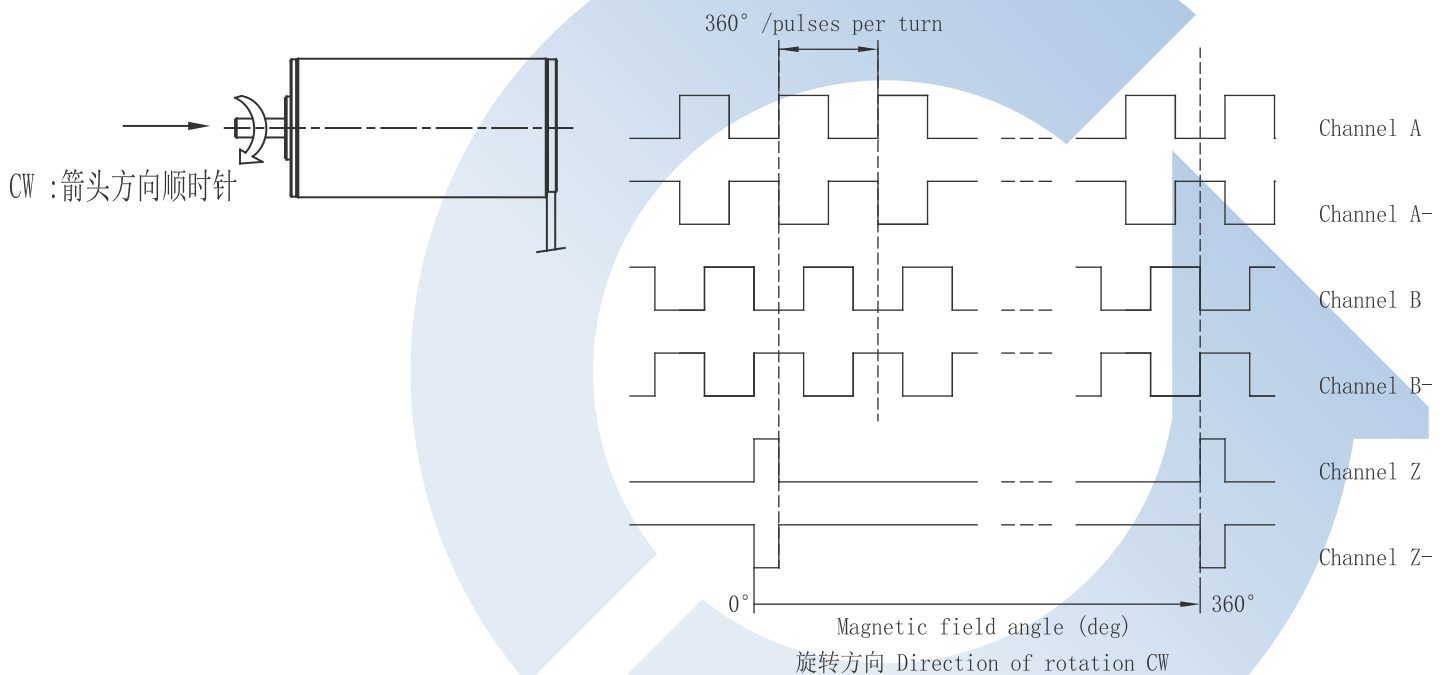
连接线型号 Cable model

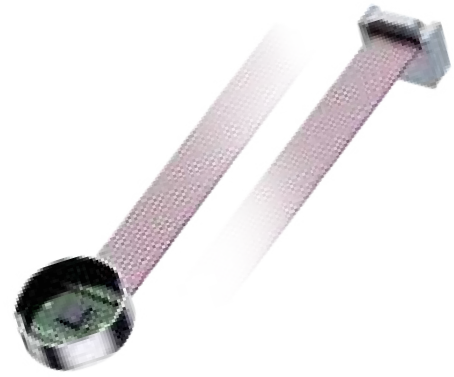
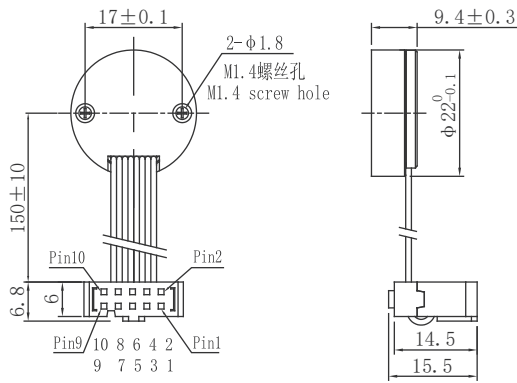
10 Pin UL2651 26AWG

线序 Cable sequence

Pin 1 Motor + (有刷电机)	Pin 2 Vcc (DC 3.3V~5V)	Pin 3 GND	Pin 4 Motor - (有刷电机)	Pin 5 Channel A-
Pin 6 Channel A	Pin 7 Channel B-	Pin 8 Channel B	Pin 9 Channel Z-	Pin 10 Channel Z

典型编码器输出信号 Typical encoder output signal





编码器参数 Encoder specifications

供电电压 (Supply voltage)	DC3.3~5V	上电时间 (Power-Up time)	65ms
典型电流值 (Typical current)	15mA	输出延迟 (Propagation delay)	≤ 10μs
最大机械速度 (Max. mechanical speed)	50000RPM	使用温度 (Operating temperature)	-40...+125°C
单圈绝对编码 (Single-turn absolute coding)	21-bit (SPI)	编码器类别 (Encoder type)	磁编码器 Magnetic encoder

连接器型号 Connector model

EN 60603-13/DIN-41651 2.54mm 10 Pin

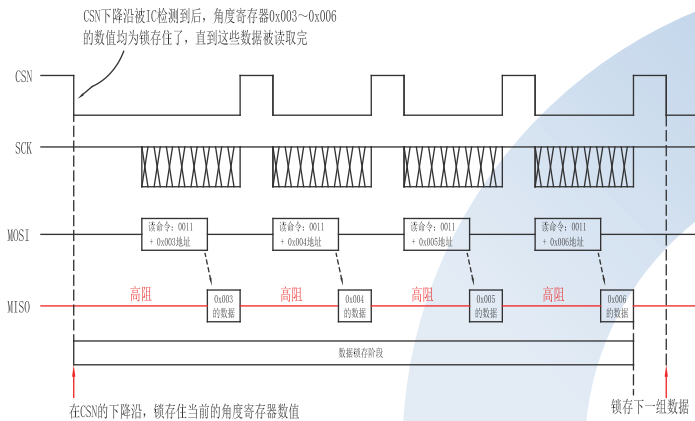
连接线型号 Cable model

10 Pin UL2651 26AWG

线序 Cable sequence

Pin 1 Motor + (有刷电机)	Pin 2 Vcc (DC 3.3V~5V)	Pin 3 GND	Pin 4 Motor - (有刷电机)	Pin 5 SCK
Pin 6 CSn	Pin 7 MOSI	Pin 8 MISO	Pin 9 NC	Pin 10 NC

SPI 单字节读取角度数据 Single-byte angle data read



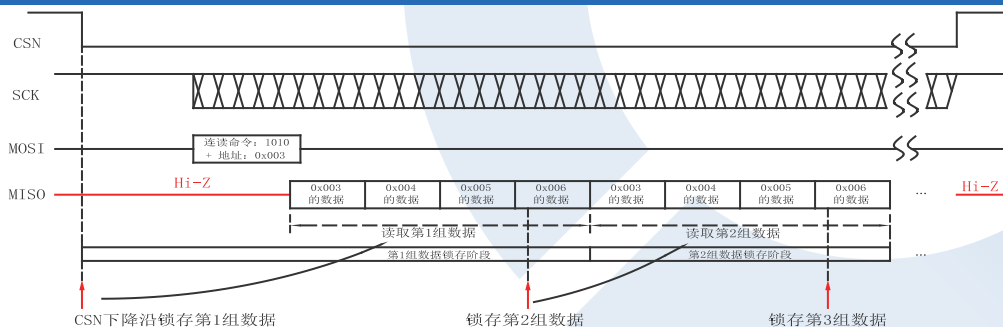
绝对角度寄存器 'ANGLE[20:0]'

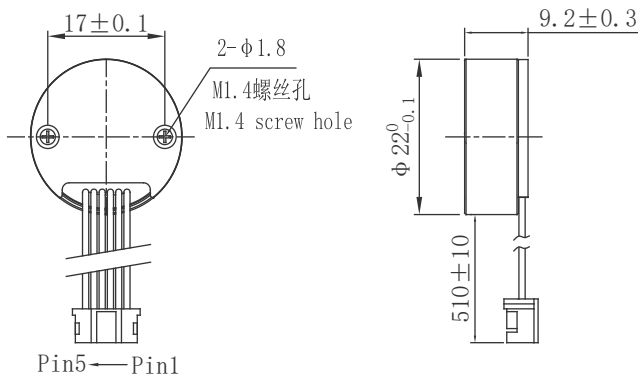
地址	位7	位6	位5	位4	位3	位2	位1	位0
0x003	ANGLE[20:13]							
0x004	ANGLE[12:5]							
0x005	ANGLE[4:0]				STATUS[2:0]			
0x006	CRC[7:0]							

0~360° 绝对角度 θ，可使用下面公式计算：

$$\theta = \frac{\sum_{i=0}^{20} \text{ANGLE}[i] \cdot 2^i}{2^{21}} \cdot 360^\circ$$

SPI 连续读角度数据 Continuous angle data read





伺服驱动器参数 Servo driver specifications

工作电压 (Operating voltage)	DC 7~36V	速度控制精度 (Speed control accuracy)	±0.5%
额定电流 (Nominal current)	3A	电流控制精度 (Current control accuracy)	±5mA
最小速度单位 (Minimum speed unit)	0.01RPM	最小位置控制单位 (Minimum position control unit)	0.01°
最小电流单位 (Minimum current unit)	1mA		

485接口 (485 interface)

- ①最大电压 (Maximum voltage): 5V
- ②MODBUS协议
- ③最大波特率 (Maximum baud rate): 921600
- ④传输距离 (波特率baud rate 921600) 20米 (Transmission distance, 20meters)

脉冲+方向接口 TTL (Pulse & Direction interface TTL)

- ①允许输入上拉电压 (Allows input of pull-up voltage): 5V
- ②最大脉冲频率 (Maximum pulse frequency): 1MHz
- ③传输距离: >2米 (Transmission distance>2M)

功能特点 Functional characteristics

- 1 集成于电机尾部, 无需外接驱动器, 精简产品结构及线路连接
Integrated at the rear of the motor, eliminating the need for external drivers and simplifying product structure and wiring connections
- 2 接口: 485接口或 脉冲+方向+故障信号
Interface: 485 interface or pulse+direction+fault signal
- 3 采用3相FOC矢量控制电机
Adopting 3-phase FOC vector to control motor
- 4 MODBUS控制协议 (485接口通讯)
MODBUS control protocol (485 interface communication)

- 5 故障输出、运行状态 (包括: 角度、速度、电流、电压、温度、状态)
Fault output, operating status (including: angle, speed, current, voltage, temperature, status)
- 6 速度模式、电流模式 (可控制扭力)
Velocity mode, Current mode (torque can be controlled)
- 7 过压保护、欠压保护、过流保护、驱动器过温保护
Protective functions: overvoltage, undervoltage, overcurrent, overheat

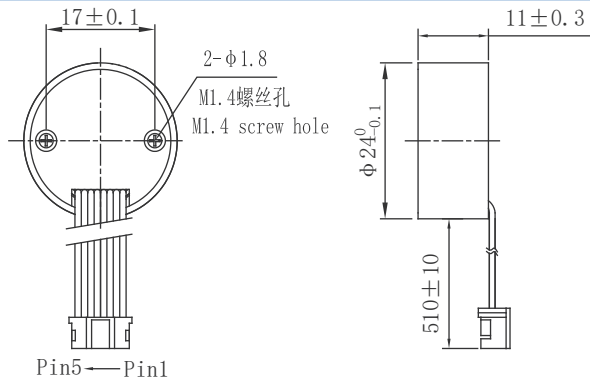
端子数据 Terminal data

端子型号Terminal model: Pin 1 ~ Pin 5 JST PHR-5Pin PH2.0 AWG26 PE

Pin 1 + 黑Black Pin 2 + 红色Red Pin 3 空白 not connected 白色White Pin 4 A(485通讯口) 蓝色Blue Pin 5 B(485通讯口) 黄色Yellow

其他参数 Other specifications

- 工作温度范围 (Operating temperature range) -20...+80°C
- 旋转方向 (Rotation direction) 顺时针方向(从电机轴头看) CW-View onto motor front shaft



伺服驱动器参数 Servo driver specifications

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485接口 (485 interface)

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- ② MODBUS协议
- ③最大波特率 (Maximum baud rate): 921600
- ④传输距离 (波特率baud rate 921600) 20米 (Transmission distance, 20meters)

脉冲+方向接口 TTL (Pulse & Direction interface TTL)

- ①允许输入上拉电压 (Allows input of pull-up voltage): 5V
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- ③传输距离: >2米 (Transmission distance>2M)

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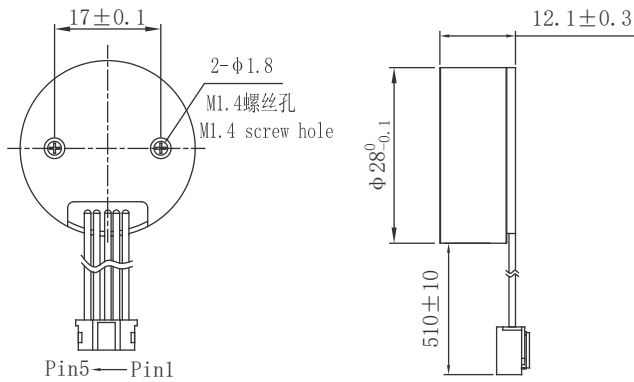
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- ①最大电压 (Maximum voltage): 5V
- ② MODBUS协议
- ③最大波特率 (Maximum baud rate): 921600
- ④传输距离 (波特率baud rate 921600) 20米 (Transmission distance, 20meters)

脉冲+方向接口 TTL (Pulse & Direction interface TTL)

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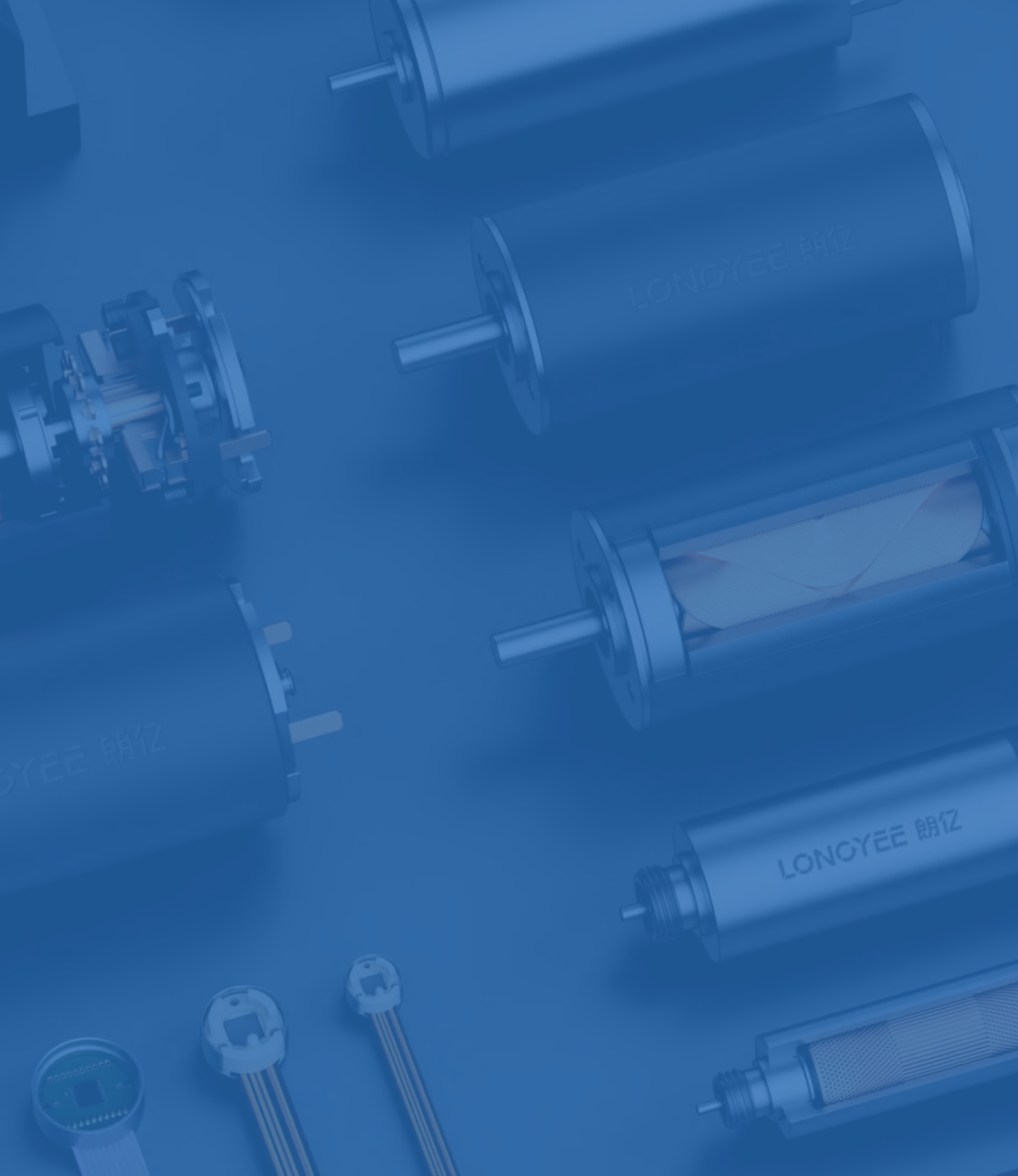
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ИННОДРАЙВ
ТЕХНОЛОГИИ ИМЕЮТ ЗНАЧЕНИЕ

Компания ООО «ИнноДрайв» является дистрибьютором продукции компании Lonoyee на территории РФ.

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